

# AMERICAN GAS ASSOCIATION MONTHLY



Vol. II

No. 6

June, 1920

## Play the Game

Theoretically, the service of the American Gas Association is for the benefit of its membership, from whom its support in funds and effort is derived. But as a matter of fact, others share the returns. As a whole the gas industry profits, and to more than a small extent every company derives something of real value from the work of the Association, made possible by companies and men who are its members. This is not a fair distribution of the load, and it never will be fair until the whole industry comes in and plays the game. It's a winning game right now, but there's a bigger bunch on the sidelines than there should be. Line up !!!



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FOR STATEMENTS AND OPINIONS CONTAINED IN PAPERS AND DISCUSSIONS  
APPEARING HEREIN, THE ASSOCIATION DOES NOT HOLD ITSELF RESPONSIBLE

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### The Men Who Meet the People

If we would create a sympathetic public, we must make a friend of our consumer. The idea is old and hackneyed, but the wisdom of its message remains. Let it be shouted from the housetops!

Our trade papers, widely read in the industry do not reach the public, so the many contributions to those journals, no matter what proof they may be of the right spirit, convey nothing directly to the people whom the company serves. The gas company, to the consumer, is the man who sells them their lighting fixtures or the man who comes to read their meters. Whatever attitude the executives may possess is of consequence only to the extent that it is reflected by the men who meet the people.

The need for the right sort of publicity is vital. Publicity is merely the telling of a story. And a story is relatively important to the audience it can command. Thousands of dollars might be spent in creating a listening public; yet the same result could be obtained, and that more normally, through our appliance salesmen, or through our gas fitters.

The man who enters the consumer's home has an advantage from the very start, in that his influence may be immediately felt. Whether he leaves a friendly atmosphere or otherwise is his responsibility, and in the last analysis, is the responsibility of the man who governs the corporation which he represents. The salesman who develops in a customer an interest in a new type of gas tubing creates publicity for the entire industry; the fitter who wipes the mud from his shoes before he enters a home creates friendliness for the entire industry.

Our best publicity experts are to be found within our own four walls—the men who meet the people. We know it—we even think of it now and then, but we do not think of it enough. If we would have a listening public and a sympathetic one—let us properly use the power of the man who in the eyes of the consumer is the gas company.

### An Industry Aroused

The gas industry is now fully alive to the seriousness of the situation confronting it. The so-called "reconstruction period"—the period of readjustment which was to follow the ending of the war, has proven an inelastic one for regulated industry and gas companies are experiencing greater stress and hardship than they faced during the entire European conflict. The ever mounting prices of material, particularly coal and oil, and steadily advancing labor costs have created a situation for which no precedent exists. Under fixed rates, revenues have remained relatively stationary and so earnings have diminished, in many cases to the vanishing point. Certainly the condition is one which might well arouse the gas industry—but that is not enough; it is necessary that the public be equally aroused. The matter is one of vital concern to the people, whose interests are just as truly threatened as are the interests of the gas companies. If the facts are clearly and forcefully presented and the grave and far-reaching results that are an inevitable consequence of a starvation policy toward public utilities, are fully made known, public opinion is bound to respond, and no greater force exists for the correction of a wrong than the force of public opinion.

Elsewhere in this issue is reproduced the call issued by the Association for a meeting of the Executives of the gas industry to deal with an unprecedented economic crisis. Concerted action is necessary, for immediate relief must be had. The words of a clear thinker on this subject describe one sure remedy, "An avalanche of sensible publicity placing every angle of the facts clearly and squarely before the people and in such a fashion and with such insistent persistence that none can fail eventually to understand the truth of the situation and therefore clearly see the course that should be taken in order to obtain the greatest permanent benefits for the greatest possible number of people—that is the consuming public at large."



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## Essentials of a Sound Policy as to the Public Utility Investor\*

**By William L. Ransom, Of the New York Bar, formerly Counsel for the New York State Public Service Commission for First District; Ex-Justice of the City Court of New York**

THE word "America" has stood before the world as symbolizing, not only a form of constitutional government, but also a concept of industrial and individual life. The distinctive American idea has been not merely a large participation in government by the citizen, but also an organization of industry which ensures large opportunity to individual enterprise, energy and thrift. Even in the rendering of essential public services, such as transportation, light, heat and power, it has been the American concept that the best results for the public and the most efficient service for the

patrons will be secured if individual initiative, resourcefulness and thrift are given generous opportunity in this field, subject to the right of the public, when emergency and need arises, to insist that the judgment of its own representatives supersedes that of company executives on questions of the quality and quantity of service to be rendered and subject also to the right of the public to intervene if company executives attempt to charge excessive rates for the service rendered.

Partly through response to war-time necessities and partly through use of war-time conditions as a pretext, funda-

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\* An address before the annual meeting of the Academy of Political Science in the City of New York on November 22, 1919, reprinted by permission from the Proceedings of the Academy of Political Science, Vol. 8, No. 4.

mentals of American industry have been set awry. In the railway and public utility field, measures were resorted to and policies insisted upon which brought these public services to a serious extremity and scared away those who would ordinarily have rendered aid. One of the foremost tasks of to-day is the restoration of conditions under which American enterprise will feel free once more to undertake great achievements in the public-service field and American investors will again be willing to employ in the public service the results of their labor and thrift.

Other speakers before this Academy have presented a wealth of statistical information concerning the railroad and public utility problem and the relation of the investor to it. Perhaps the most helpful thing I can undertake at this juncture will be to try to formulate some of the fundamental principles which must be taken into account in all efforts to reach a solution of the present problem.

The future of railways and public-service enterprises, privately owned and operated under public regulation, depends in large part on the ability of such a regime to command the confidence of the investing public. New capital must be had in large quantities for new construction and refinancing. The future of the railways is thus deeply involved in the broader and more basic problem of the status of regulated industry in the United States. The operating experience of the railroads during the years immediately preceding the war establishes that more than half a billion dollars of new capital will be needed annually by the American railroads. For a number of years immediately ahead, especially in view of the present price level, the necessary new capital is more likely to exceed than to fall below a billion dollars per

year. The companies performing services of light, heat, urban transportation and power, must now be able to command many hundreds of millions of dollars for new construction, deferred for several years in obedience to the request of National and State authorities. Railways and public utilities must keep pace with the life and needs of the public they serve; they must grow or stagnate; growth means new capital; and new capital depends on conditions of investment. You can compel a man to *pay in taxes* the deficits incurred in railway operation or even the principal and interest of loans from the public treasury for new capital for railway and public utility enterprises, but you cannot compel him to *invest* his money in an enterprise compelled to do business under conditions which arouse his distrust and destroy his confidence.

In the industrial world, recent events have emphasized the fundamental American principle that in conflicts between employees and employers in basic industries, the rights and interests of the public are paramount to those of contestants on either side. *The right of the great public to be adequately and continuously served is put in the first place.* In the field of railway and public-utility service, likewise, there has lately been at work a sharp crystallization of opinion to similar effect—a recognition that above and beyond all efforts to capitalize the social unrest and force a change of ownership, *the essential thing is that these vital facilities shall function to maximum efficiency and that injustice shall not be done to those whose abilities have perfected these enterprises and whose monies are serving the public through them.*

We have had in the United States nearly ten years of deliberate, well-

planned warfare to intimidate investors from furnishing the needed new capital for railway and other public-service projects. In some instances, this crusade has been the by-product of a narrow but zealous view of public rights as to franchise-holding companies; in other cases, it has been the work of men who believed that manifestations of extreme hostility to the owners of these enterprises would be so popular as to lead naturally to political preferment. In many instances, however, the campaign of terrorism and affrightment of investors has been inspired by those who realized that if private funds would not furnish the requisite capital for new construction and new financing, the treasury of the government will of necessity be resorted to, and that the most effective step towards governmental acquisition of all basic utilities would be to force existing properties into the bankruptcy court or upon the bargain counter.

In the debates which have taken place in the National Congress, and in much of the more recent discussion as to the plight of utilities in our states and cities, there has been discernible what may be termed a new realization of the relationship of the investor to the whole problem of public service. If we are to avoid and withstand the wholesale socialization of the railway, light, heat, power and traction enterprises of the country, conditions must be restored which will attract private capital freely, normally and adequately, under proper safeguards and guarantees, again into this important field. Investors and the general public may well grasp the situation and join hands in dealing with it. The insidious campaign which has made private capital unwilling to risk further outlays in the railway and public utility field has had consciously for its objective the compelling of resort to governmental funds in-

stead, and the clubbing of the present owners into willingness to sell outright on a bargain basis. In what I am saying in this regard, I am in no way discussing the merits of the suggestions from time to time made in American cities that a particular utility or utilities, according to the conditions, might be advantageously acquired by the municipality on a basis awarding just compensation to the investors. That has always seemed to me to be a business question, to be answered in each community according to its local conditions. Public ownership on such a basis may be wise or unwise, but in either event it has no such sinister aspect as the agitation to which I now refer.

In any program of effort to restore conditions under which private capital will again flow naturally and adequately into railway and public utility enterprises, there are, I think, certain fundamentals of policy, which may be briefly stated and commented upon as follows:

(1) *A recognition and enforcement by public authority of the corporate right to earn such a rate of return as will meet operating expenses, enable the system as a whole to be kept in first-class condition, and attract new capital into the enterprise as needed.*

In fixing the rates to be charged by a railway or other public service company, the effect upon the willingness of capital to finance needed new construction is too often lost sight of, in the effort to keep rates as low as possible. A rate which meets operating expenses and yields a return barely beyond the borders of confiscation, may not be adequate for the life of the enterprise. If the conditions of investment in railways and other public utilities are kept too irksome and hazardous, the cost of new capital becomes too high, and this in turn adds

heavily to the cost of operation. The public inflicts harm and expense on itself by failing to deal justly with the investor.

At the present time, private capital may embark in unregulated industries with less risks and fewer embarrassments and earn a larger rate of return than may ever be countenanced in public service enterprises. It is no accident that the security issues of concerns selling candy, automobile tires, and talking-machines, or running "chain stores," have become more popular on the Exchanges than the best of our railroad and public utility issues. New stock of a railroad corporation could hardly be sold at all. To attract private capital into the public service field at all, it is necessary, first of all, to eliminate or reduce some of the hazards, along lines I shall later mention; but it may also be necessary to revise some of the earlier concepts of what constitutes a fair and adequate rate of return for public service enterprises.

In computing a fair rate of return on investments in this field, an unfounded analogy is too commonly drawn with the statutes regulating the rates of legal interest in the several states, and the conclusion is reached that a rate of return on public utility investment is, perforce, adequate if it approximates the figure at which interest on certain types of loans would become usurious. The need for making the rate of return such as to attract new capital readily, as needed, in the level of prices and economic conditions to which the war has given apparent permanency, is not heeded. Yesterday's 6 per cent. return has no drawing power under to-day's conditions. If 6 per cent. was not too high in 1900 or 1913, 10 or 12 per cent. is required now. As the Supreme Court of the United States said a few weeks ago, in the Lincoln Gas Company Case (250 U. S. Reports, page 256):

It is a matter of common knowledge that, owing principally to the world war, the costs of labor and supplies of every kind have greatly advanced. \* \* \* And it is equally well known that annual returns upon capital and enterprise the world over have materially increased, so that what would have been a proper rate of return for capital invested in gas plants and similar public utilities a few years ago, furnishes no safe criterion for the present or for the future.

If our public utility enterprises are to *live* and render a one hundred per cent. service to the public, then the governmental authority—legislative, executive and judicial—must recognize and enforce the utilities' right to a rate of return which will draw capital into this field as needed. Reasonable rates must be fixed by public authority, and the companies permitted and encouraged to earn all they can under those rates. Anything else takes away the incentives to good management. Particular utilities may at a given time, such as the present, find themselves in such a plight that they are willing and eager to stipulate any sort of a basis, however unsound, as a condition of getting municipal acquiescence in a rate yielding the "cost of the service" and readjusted from time to time to yield no more; but it is my judgment that in the long run, no such makeshift can give the public the service it wants and should have.

(2) *A cessation of arbitrary legislative interference along lines of fixed, inflexible rates, applied within areas or to classes of service uniformly without regard to conditions.*

In whatever public authority undertakes to do respecting the rates of railroads and other public service corporations, the concept of *flexibility* must go hand in hand with *adequacy*. Rates must be readily readjustable for good cause shown—*upward* as readily and courageously as *downward*—whenever the facts warrant. There is no way of "getting



something for nothing" from a public-service corporation, over any considerable period of time. The patron must pay for the service; the investor must pay for it; or the taxpayer must pay for it; or all three must pay in part. Unless someone pays adequately, the service stops. If the patron does not pay adequately, the investor soon "takes his losses" and withdraws, either leaving the taxpayer or the patron to pay the cost or the two to divide it between them. The usual suggestion is that the public treasury shall in some manner furnish the capital and assume the mounting deficits, and the usual experience has been that paying the deficits by taxes makes transportation cost more. You can commandeer new capital by taxation, whether the enterprise is given a fair chance or not, but if you wish voluntary investment of private capital the conditions must be made attractive.

For many years there has been building in this country an elaborate mechanism, State and Federal, for forcing railroad and public utility rates downward. This was in a period of declining costs of operation per unit of service rendered. Industry has now experienced for five years a period of rising costs, and those costs are still rising, but the mechanism which availed to force rates down has failed dismally, in many of the states, to raise rates flexibly so as to keep revenues adequate and the investor safe. As a means of keeping rates adequate and reasonable in a time of rising costs, the machinery of public control, for the most part, broke down in the emergency. It has failed to protect either the investor or the public. This has been true of the Interstate Commerce Commission and many of the State Commissions alike. Is it surprising that the investor has been affrighted from the field?

The worst aspect of the problem of

keeping rates adequate—neither too high nor too low—has proved to be the fixed legislative rate, born of some political exigency and applied without regard for consequences. In many instances, the Legislature has left the situation such that the Commission appointed for the purpose of regulating rates as well as service, has no power to authorize an adequate rate, even when conditions cry out for increase.

The inflexible rate, fixed by legislative act on an arbitrary basis and kept in force regardless of changed conditions, is the terror of the investor and a downright menace to good public-utility service.

(3) *Clarification of the bases of return upon investment, so as to ensure that no theoretic concepts and calculations can impair the investor's right to rates based upon the property investment devoted to the public service, through adherence to any theoretic claim that the quantum of investment in a railroad system or a public utility plant becomes automatically less the longer it serves the public, until it is finally wiped out altogether at the behest of some estimated "table of lives" of detached units.*

Time will not permit, and the present occasion does not warrant, an extended discussion of the questions of law and applied economics involved in the oft-heard claim that property devoted to the public service should be subjected to a "theoretical depreciation" which pares and whittles away, year by year, the investor's outlay and his right to receive a reasonable return upon the whole thereof.

I may, however, express the view that the most effective factor in the whole campaign to intimidate the investor and drive him from the railroad and public-utility field, has been the insidious doc-



trine of "expiring" investment or property value. In itself it has been, and will remain, sufficient to deter investors from risking new monies in a field subject to such a confiscatory concept, until it is generally rejected. Nevertheless, the statute under which the valuation of railway property has been in progress has been construed by some to give sanction to this concept.

The idea may be roughly illustrated in this way: Investors lay out \$1,000,000 in building a railroad addition or a public utility plant. They expect a return of 7 per cent. or  $7\frac{1}{2}$  per cent. thereon, over and above operating expenses and the upkeep of the property, and rates are fixed accordingly. If, after the property has been in operation, such a rate has been charged, and such a return received, for several years, the question of the fixation of new rates by a regulatory commission arises, and the new rates are made such as to yield thereafter a return on a property investment of only \$600,000, and the quantum of investment is fixed accordingly, it is obvious that something has been done by the commission to wipe out and obliterate \$400,000 of investments in the property, and *confiscation* to that extent has taken place in the guise of law. That this is done, in disregard of actualities, on a theoretical estimate that particular units in the property had a "life" of only ten years and that at the end of four years, four-tenths of that "life," and so of the property "value," had "expired," leaving only six-tenths of "life" and "value" "unimpaired," does not alter the consequences to the investor. The result is a progressive destruction of his investment outlay, both as to the amount the property is entitled to earn and as to his right to receive eventual repayment of his investment in full; and he may be pardoned for preferring a field

of enterprise where no such scheme of minimizing his investment is in vogue.

The bases of sound rate-making are, I think, clear, and their practical application needs to be defined and insisted upon. The rate chargeable by a railroad or utility should be adequate:

(1) To defray all operating expenses—the cost of the service.

(2) To provide, as a part of the operating costs, for the maintaining of the system and property in good condition, furnish renewals and replacements, and cover the diminution of capital account through property withdrawn from service—thus keeping the property in first-class operating condition and the *quantum* of investment unimpaired.

(3) Over and above these current costs, to yield the investor a reasonable rate of return upon his property investment in the enterprise—his unimpaired investment—so that what he put into the project may remain in it and his right to earn a return upon all of it may continue, in the absence of some ultimate liquidation. Until the investor gets his money back from the enterprise, in some form other than that of the payment to him of the annual return, he must be regarded as entitled to receive a return calculated upon his aggregate outlay—what he is out of pocket because his money is in this enterprise—and no countenance can be given to the concept that his investment is *less* merely because it has continued to serve the public for some years. No man's investment is progressively destroyed by his receiving from year to year a payment representing a return on the investment. Nor does its duration affect its amount adversely. The *principal* of the money he has loaned to the enterprise is not extinguished or pared down by perennial payments of a return thereon. The right to earn a re-

turn on the full *quantum* of the investment continues until the investment itself is liquidated or repaid.

Under present-day operating conditions and with the broad powers of the regulatory commissions over plant and equipment, the endeavors of the executives of a railway or public utility enterprise are to maintain it in 100 per cent. operating condition, and to make repairs, replacements and renewals whenever advisable to that end. This is done as a current charge out of operating expenses, and the plant is thus continuously renewing itself. Particular parts of units may wear or break; units may become inadequate or obsolete; but *the plant goes on*, and is kept abreast of operating needs, and has virtually the same, and often even greater, productivity and efficiency, years after its operation began and years after the process of continuing renewal, repair and replacement began. The integrity of the capital investment is thus maintained, and the plant itself is kept physically good to the extent practicable or economically possible. Looking at the plant or railway system at any given time, certain outlays would be found necessary to make the plant or system 100 per cent. physically good—things which would be done in the ordinary course of repairs and renewals, and things which it would hardly pay to do, because the conditions to be repaired are so casual and inconsequential as not to detract from operating efficiency. The full investment remains in the property, however, and the investor is entitled to a return upon the full amount thereof until his investment has been repaid him.

In order to feel assured of a square deal, the investor needs to know, with considerable certainty, the capital sum upon which a return will be computed, in any rate-revision by public authority. He needs to know that the company will be

allowed to earn a fair rate on the capital put in by him until such time as that capital is returned to him. There is no need now for uncertainty or indefiniteness about these bases of action. For years the railroads and the utilities have been subjected to accounting systems under which outlays are fully recorded, capital accounts are closely scrutinized, units and quantities and prices are known, and authentic data is available for the basis of sound and just action in rate matters.

(4) *A constructive and cooperative attitude respecting the issuance of securities for new construction and re-financing.*

To bring the investor back into the railway and public-utility field with full confidence, there is need for a helpful and non-legalistic attitude on the part of the regulatory commissions, in proceedings for authority to issue stocks and bonds for capital purposes, including re-financing. For a number of years, new construction by railways and utilities has been held to a minimum, as a part of a war-time program, and it has been deemed generally impracticable to undertake flotations of securities for any purpose in this field, except where maturing obligations have left no alternative. Needed extensions have been long deferred, and applications for approval of new security issues have all but disappeared from commission calendars. Perhaps as a result of this condition we have lost sight, for a time, of the practical consequences of the course taken by the state authorities in acting upon proposed security issues. The time is at hand, however, when this phase of regulatory power must be squarely faced, because it bears vitally upon the question whether new capital can be had from private sources. The era of "wild-cat" and speculative financ-

iering in the public-service field is far behind us; the day of "watered" or inflated issues of securities by railway and other public-utility corporations is happily past, in nearly all of the states. The issuance of securities by public-service companies, under the authority of state tribunals, during the past decade, has in most instances been preceded by rigorous and minute inquiry to see to it that bona fide capital purposes were represented and that an adequate amount of money or property was received by the companies as consideration therefor. The certification of the security issue by the state commission has been, as it should be, an assurance and protection to the investor; but instances have not been lacking where the attitude of the commission was so exacting and inflexible as to bar the way to businesslike financing or re-financing. The difficulty has been more often one of procedure and of intellectual predisposition than of substance; but the delay, the deterrents, the tendency to do "cheese-paring," and the reluctance to act readily upon the obvious actualities of a business situation, have operated to create oftentimes an atmosphere which the investor prefers to keep out of when he can.

The temper of the times in nowise suggests a return to the days of unregulated issuance of securities. Particularly if the commissions would fulfill their proper responsibility for the allowance of a fair return upon the property investment whose capitalization they sanction, the official scrutiny or security issues would be a great boon and safeguard to the *bona fide* investor. There is, however, need for reason, accommodation, common-sense regard for realities, and real breadth of view, in the procedural handling of security issues by state tribunals.

The practical needs of the situation may perhaps be pointed by the comment

of the Illinois countryman who went to Mr. Lincoln to consult him regarding marital infelicities. After listening to a narrative which covered some twenty years of domesticity, marred often by conflict, Mr. Lincoln ventured the view that the facts stated would hardly sustain a suit for divorce. "Good heavens," replied the prospective client, "I do not want a *divorce*; what I want is a little more freedom on lodge nights!"

(5) *A better adjustment of the relationship between company management and the various instrumentalities of public regulation.*

I do not believe that the investor will be disposed to supply again the new capital for needed facilities of transportation, light, heat and power, except as the relationship between the company management and the various officials and bodies imposing regulatory requirements is brought to a basis better defined and more harmonious. There is need for adjustment and definition, on both sides; mistakes have been made, on both sides; but the present situation leaves the definite feeling that various public agencies have been given drastic powers over both his outlay and his earnings, and that he and his investments are too often torn to tatters in a conflict between the commissions and the company officers, over matters which he does not fully understand, beyond the point that public officers have been vested with a power to do him harm from which the best efforts of directors and executives cannot altogether protect him.

Regulation of a thorough-going character has in my judgment come to stay, although perhaps not altogether in its present form and scope and with its present inadequacies of business-like procedure. The public interest has come to be recognized as a general partner in every

public-utility enterprise. There is need for recognition, on both sides, as to just what public regulation really is and means. No mandates of a regulatory tribunal are required to give to the public interest a voice or a vote in the conduct of the affairs of the average large enterprise of today. An enlightened public point of view is already represented, and on the great mass of corporate problems functions acceptably to the general public, in the personnel of the directorates of the companies to which the furnishing of essential public services has been entrusted by franchise grants. The Commission is not the *first* body of men which approaches a public-service problem with a purpose to solve it justly, fairly, and with full regard to public rights and interests. The public may be entitled to have the judgment of the corporate directors reviewed and overruled, but it is a mistake not to recognize the facts of the situation. Subject to the qualification that men of differing experience may differ widely in their judgments, a real desire to serve the public acceptably is now the rule rather than the exception, and the regulatory tribunals are called upon to review and correct divergencies of judgment rather than perversity of purpose. A regulatory commission may with propriety be reluctant when it is asked, not to prevent a public utility from disobeying the law, but to override the judgment of the directors and company executives charged with the responsibility and most fully conversant with all the facts.

In recognizing that public control through suitable agencies is an essential part of any plan of public-utility operation through private enterprise, and that cooperation must be had between company and commission, there is need also for recognition of the delicate and drastic power reposed in the public agency. Power to fix the price charged for the

company's product and power to impose requirements which add to the cost of producing the service rendered, involves a far-reaching control, not only over the investor's earnings from the capital he is devoting to the public service, but even over the security and permanency of the investment itself. In ways that attempted enforcement of the constitutional guarantees may not be able to forestall, regulation may inflict a virtual confiscation. So the investor may be pardoned if he is predisposed to be wary about putting more of his money into enterprises so drastically supervised, at a time when there is such a demand for money in industries subject to no such control over selling-price, security issues, and the property investment itself.

Thus there is plainly a need that the commissions shall be made up of men of the broadest experience and open-mindedness of view, and that they shall be assured tenure, salaries, rank, and status of aloofness from political and financial entanglements, so that their position and qualifications may correspond to those of judges of the highest courts of the state. Furthermore, there is need for a simplification and concentration of supervisory powers. Far too many public officials and bodies are vested with power to affect adversely the earnings and properties of railroads and other utilities. From a score of uncoordinated public instrumentalities come a multitude of directions, adding to the complexity and cost of doing business, and subtracting from the revenues. "Too many cooks" spoil the investment; there is need for a more unified regulation.

For example, if the government requires a utility to pay taxes on a given *quantum* of property investment, it should readily, and at all hazards, secure to the company's investors rates permitting an adequate return on *at least* that



quantum of property. Oftentimes the value fixed for tax purposes may fall far below the total property investment on which the company has a right to earn a return, but the spectacle should be ended of *one set* of governmental officers trying to establish the highest possible value for the company's property as that on which the company should pay taxes, and *another* set of officials trying to prove that the same property has little or no value at all in a rate proceeding, and *both* sets of officials, and several others, trying to prevent the company from earning anything at all on either the highest or the lowest value claimed by any of the public authorities.

#### **Services of Technical Students Available to Gas Companies**

The Association, recognizing the importance of encouraging university and college graduates to consider the gas business as a broad and attractive field in which to engage their talents, has appointed a representative committee of gas men and educators to co-operate with institutions of learning for the purpose of bringing to the attention of students the opportunities offered by the gas industry to those about to enter the business world.

An opportunity exists for the gas companies to secure the services of such students during the summer vacation months, when many of these young men will be available. The advantages of such a plan will be that the gas company will secure the services of men not only interested in their work but desirous of learning all they can about the business—and with such added practical

Again, if the government subjects the finances and operations of a public-service company to a constant and inquisitorial supervision and analysis, in the form of a uniform system of accounts and closely scrutinized reports rendered under penalty, the operating data thus brought together under public scrutiny ought to be recognized as the available basis for official action in *favor of*, as readily as *against*, the company, and those who have required the company to spend much time and money in complying with these regulatory requirements ought not to be permitted to deny the company the benefits of such compliance in good faith.

knowledge and an awakened interest, they become likely prospects for permanent service in the industry after graduation.

In the June, 1920, edition of The Tech Engineering News there will appear an article entitled "The Field of the Gas Industry," written for the purpose of suggesting to students the opportunities offered by the gas business and to suggest the advisability of students employing their vacation period in useful and interesting work.

The suggestion is therefore made to our member companies that wherever possible they employ the services of one or more college students during the summer months, for it is believed that if this is done generally an important step will have been taken in making available to the industry the services of these men for permanent employment later on.

#### **No More Free Gas**

Under a ruling of the Public Service Commission, Philadelphia and other Pennsylvania cities and towns must pay for all gas and electric light used upon the streets, avenues and highways, and in all public buildings, fire and station houses, and in all parks and other city property, at the same rate that is charged private citizens.



## GENERAL

### CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

**National Bureau of Standards** (Advisory Committee)—O. H. FOGG, New York, N. Y.  
**Beal Medal**—GEO. B. CORTELYOU, New York, N. Y.  
**Accident Prevention**—JAMES B. DOUGLAS, Philadelphia, Pa.  
**Amendments to Constitution**—WM. J. CLARK, Mt. Vernon, N. Y.  
**Chamber of Commerce, Membership in**—CAPT. WM. E. MCKAY, Boston, Mass.  
**Caloric Standards**—J. B. KLUMPF, Philadelphia, Pa.  
**Central Development and Testing Laboratory**—W. H. GARTLEY, Philadelphia, Pa.  
**Educational**—WALTON CLARK, Philadelphia, Pa.  
**Finance**—E. H. ROSENQUEST, New York, N. Y.  
**Gas & Electric Service** (National)—W. H. GARTLEY, Philadelphia, Pa.

**Gas Securities**—RANDAL MORGAN, Philadelphia, Pa.  
**Funds for Gas & Electric Service**—H. L. DOHERTY, New York, N. Y.  
**National Fire Protection Assn., Membership in**—W. R. ADDICES, New York, N. Y.  
**Relations with Other Assns., etc.** (Formation of Geographic and Company Sections)—L. R. DUTTON, Jenkintown, Pa.  
**Standard Gas Appliance Specifications**—W. T. RASCH, New York, N. Y.  
**Standard Pipe Threads** (International)—W. CULLEN MORRIS, New York, N. Y.  
**Taxation**—P. H. GADSDEN, Philadelphia, Pa.

## Notes of the Executive Board Meeting

THE April meeting of the Executive Board, held at Association Headquarters on the 28th of April was well attended. In addition to the members of the Board there were present by invitation, Mr. Randal Morgan, Mr. P. H. Gadsden, and Mr. A. P. Lathrop.

One holding company, twenty-five gas companies, nine manufacturer companies and ninety-nine individuals, were approved for election to membership.

The Board approved the recommendation of the Managing Committee of the Commercial Section that the merchandizing of gas consuming appliances is a proper and desirable function of the members of this Association, whose merchandizing departments should be regarded as permanent establishments and so conducted as to be not only self-supporting but profitable.

It was considered desirable that the term "Sales Department" be substituted for "Commercial Department," "New Business Department," etc., and the title "Sales Manager" be used rather than "New Business Manager," "Commercial

Manager," etc., as more fittingly expressive of the dignity of this department and its head.

The President was authorized to appoint a committee on "Methods of Charging for Gas," which committee will consider various recommendations that have been made on this subject.

A committee was appointed to co-operate with universities and colleges for the purpose of bringing to the attention of technical students the opportunities afforded by the gas industry to those about to engage in business.

The Board approved the action taken by the Secretary-Manager in accepting the invitation of the American Engineering Standards Committee to act as a joint sponsor with the Bureau of Standards in the preparation of a Gas Safety Code.

The Secretary-Manager reported for the Committee investigating the oil situation that several sub-committees were at work jointly with representatives of the oil industry and that experimental work

is now in progress to determine the suitability of substitute oils in water gas manufacture. Data is being secured from all available sources which will help in solving the oil problem.

Mr. Philip H. Gadsden, who was present by invitation of the President, outlined at length the critical situation which now confronts many gas companies and described plans for a publicity movement to bring relief from the burden of inadequate rates and the unprecedented costs of essential materials used in gas manufacture. Mr. Randal Morgan and Mr. Lathrop, also present at the President's invitation, concurred in Mr. Gadsden's suggestion, following which the Board authorized the President to call a meeting in New York on May 26 of the executives of all gas companies, in order that a definite plan of procedure be approved and put into effect.

Another serious situation brought to

the attention of the Board by Mr. Brown was the enormous advances in the price of gas coal, as well as the difficulty of securing deliveries. It was revealed that the large export shipments were taking out of the market large quantities of coal at such attractive prices to the operators that this was probably one of the chief reasons for a supply being unavailable. The Board directed that a resolution be forwarded to the authorities controlling the exportation of coal, drawing their attention to the seriousness of the situation and urging curtailment of the volume of coal exported until the condition of the coal market should become stabilized. Immediate steps will be taken through the National Committee on Gas and Electric Service in an effort to bring about a prompt improvement in the coal situation.

Reports from the Chairmen of the sections indicated gratifying progress in the carrying on of the section activities.

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### Public Utility Reports—Annotated

These reports which have been compiled and distributed by the Utilities Publication Committee since 1915 have been of invaluable service to gas companies, not only in giving wide publicity to the decisions of the State Public Utility Commissions, but also in bringing them together under carefully prepared indices and digests for the use of gas companies, their attorneys, accountants and engineers.

The cost of the service is \$32.50 a year, payable in installments of \$5.00 and \$2.50, which price includes fortnightly advance pamphlets, six bound volumes and an annual index.

Subscriptions should be sent direct to A. S. Hills, Secretary, Utilities Publication Committee, 945 Munsey Building, Washington, D. C.

### Publicity for Industrial Fuel Gas

"Annealing with Gas," an article embracing the "ways, means, and results" of the process is a contribution to the May issue of the *Scientific American*, by Mr. W. A. Ehlers, Industrial Engineer of the American Gas Association. The article, in a simple, non-technical manner, furnishes information concerning a subject of interest to all gas companies, inasmuch as it points to a widening use of gas in the industrial field.

Mr. Ehlers was instrumental in converting to the use of gas the coal furnaces of a copper wire manufacturing plant in Rome, N. Y., a change which has been highly satisfactory, both in cost and in efficiency.

The annealing of metals offers a broad field for the application of industrial fuel gas.

## The Tide of Public Opinion

(Extracts from an address by Robt. S. Miller at the 12th annual banquet of the Indiana Gas Association at the West Baden Hotel, Monday, April 26, 1920.)

**P**RESIDENT CORTELYOU at the October, 1919, meeting of the American Gas Association formulated the slogan "Let's Go," and the burden of my remarks will be directed toward the furtherance of a project in which there is plenty of room to go.

Practically every speaker that has addressed an audience has said at one time or another that we are living in a critical period but I am convinced that we are living in a new age altogether, conditions that existed prior to the war are gone and probably never will return in our day.

To-day the public utilities stand alone as least able to effect the necessary adjustments in their business to keep pace with our new standard of living. Knowing "That all political power is vested in and derived from the people; that all government of right originates from the people, is founded upon their will only and is instituted solely for the good of the whole," the people then are the ones to whom the utilities must in the first instance tell their troubles and to whom they must look for relief. The people are supreme. Too many utilities have failed to keep up a speaking acquaintance with the people and when they find themselves in difficulties, attempt at the eleventh hour, when assailed by political demagogues, social unrest or public clamor for lower rates, to create a relation which should always have existed; as a consequence they are reaping the results of their own folly.

Ole Hansen, Mayor of Seattle, said to us: "I don't believe you have told the facts of your business in one or two

syllable words to the public. Everybody believes for instance that gas companies make a lot of money. You and I know that the gas companies and all the public utilities have been fighting for their lives during the period of increased costs."

Every company irrespective of its size should provide in its annual budget a certain fixed sum for newspaper space which should be used continuously as conditions or necessity might require. Handle one subject at a time and stick to it until the fact or feature you are trying to "PUT OVER" is driven home. Don't attempt a series of service talks unless you can back up every printed word. Don't attempt to complete within a week, a campaign that should cover six weeks. Preserve copies of all your advertising, paste a copy in your scrap book for future reference and see that others are posted in conspicuous places for the information of your employees. When you have completed putting on a publicity or good will campaign have your printer make up a handsome booklet printed in large type on fine paper and nicely bound, and send copies to all of your customers, if the booklet is what it should be the recipient will feel a pride in the ownership and will not only read it but preserve it. Always bear in mind that it is results that you are after and anything short of that is money wasted. Have your name placed on the mailing list of every company that advertises but don't forget in turn to mail each of them copies of your advertising.

Our national organization, the American Gas Association, has been quick to realize the advantages that will accrue to the industry as a whole by a campaign of national advertising and is supplying its member companies with the right kind of material to enable them to carry on an

intelligent campaign of publicity in their respective communities. The Indiana Public Utilities Association with headquarters in Indianapolis is also engaged in sending suitable material.

The benefits of consistent advertising are too apparent to question their effect upon our business, service, good will or confidence. Advertising is similar to firing fuel in a boiler, as long as you keep

feeding fuel you make steam to move the wheels of commerce, when you stop firing the fuel the steam stops and business slows down and finally stands still. It's strange the large number of people that ignore this simple fact.

In closing let me quote the following lines which appeared on the cover page of the American Gas Association Monthly for March, 1920:

**"When the Tide of Public Opinion Swells Thru Recognition of Service Well Performed, All Our Boats Will Be Lifted."**



## Industrial Fuel Engineering Service

**M**R. EHLERS has returned to A. G. A. Headquarters after completing seven weeks of field work in the West. The results of the field engagements are very gratifying considering the time allotted by each company to the work.

The following companies arranged for service:

Sheboygan Gas Light Co., Sheboygan, Wis.  
Wisconsin Public Service Co., Green Bay, Wis.

Greeley Gas & Fuel Co., Greeley, Col.

Utah Valley Gas & Coke Co., Provo, Utah

Utah Gas & Coke Co., Salt Lake City, Utah

The above together with the 49 other companies that have made use of the Industrial Fuel Engineering Service is conclusive evidence of its usefulness to the gas industry.

In addition to the above Mr. Ehlers has made several trips to give assistance to the Fulton (N. Y.) Fuel & Light Company.

Included in the new business secured may be mentioned the following:

18" x 32" oven furnace for rib soldering gun barrels.

Oxy-gas welding torch for brazing gun barrels.

Lead hardening furnace.

Japanning oven 7'0" w. x 17'0" l. x 7'0" h.

Burner equipment for 2 ton stereotype pot.

Burner equipment for 2½ ton stereotype pot.

Burner for conversion of butchers cauldron to gas.

Burner for special application of gas to heating babbitt metal for automobile bearings.

Oxy-gas lead burning outfits.

35 gal. water jacketed glue cauldron.

Oven furnace for die hardening.

Conversion of 10 x 10 Bakers oven to gas fuel.

In addition to the above Mr. Ehlers spent a considerable amount of his time in investigating new industries, inspecting and offering suggestions in connection with gas equipment already installed.

It is very evident that the A. G. A. industrial fuel field service is of valuable assistance to those companies making use of it. The manager of one company writes as follows:

"We believe that your (Mr. Ehlers') visit is going to pay us by returns, as we have closed with three or four of the factories whom you called upon."

(Continued on page 392)



## Accident Prevention Committee

### The Gas Company,—(Employee accidents)

(Part of an address entitled, "The Public Utility and its Hazards," delivered by James B. Douglas, United Gas Improvement Co., before the Pennsylvania Safety Congress, Harrisburg, Pa., March 23rd, 1920.)

**T**HE accident hazards to employees incident to being engaged in the Gas Industry are comparatively few. Of a thousand reports contributed by 77 artificial gas companies scattered over 29 states of the Union, which have recently been examined, but 4.15 per cent. were due to causes considered peculiar to the industry; that is, leakage of gas, explosions and animal bites. The remaining 95.85 per cent. of the accidents were due to the causes figured in industry in general, hanging and protruding objects; falls into openings; nails, wire and glass; machinery; hot materials; hand tools; vehicles; falling objects; handling material; and greatest of all, slipping, tripping, and falling. Of the thousand gas industry cases analyzed, slipping, tripping and falling accidents caused the greatest loss of time.

This latter cause, I note, figures prominently in the Electric Industry, ranking third in importance in the causes and second in days of disability, electric current being first.

According to our figures, in the gas industry operated by our interests in Philadelphia, in 1918 there were 23.1 accidents per thousand 300 day workers averaging 10 hours per day; with an average of 4.68 days lost per accident. In 1919, on the same basis, there were 15.8 accidents per thousand workers employed; with an average of 4.69 days lost per accident.

In "a section of the Iron and Steel Industry" in 1916 and 1917, the last years I find reported by the United States Bureau of Labor Statistics, the frequency is given as 100.8 and 81.0, respectively;

and the severity, 9.3 and 8.3, respectively.

Among the last figures of this kind issued by the Bureau I find the following:

	Frequency Per 1000, 300 day workers	Severity Per 300 day worker
Arsenals, 1912-1914 ...	189.5	6.0
Machine Building, 1917	92.6	6.1
Shipbuilding, 1917 ....	63.8	10.8
Navy Yards, 1918.....	99.2	6.8

While these returns are not strictly comparable with our experience in Philadelphia, it doubtless will be conceded that our returns in 1919 showing the frequency of 15.8 and the severity of 4.69 speak well for the results obtained in the prevention of accidents.

In Philadelphia our employee accident experience improved considerably in 1919 over its record for the year, 1918. Our experience shows clearly the downward trend of the accidents curve. It may be noted from the Average lines that in 1919 there was a monthly average of 36.6 less employee accidents than in 1918.

The days of disability to employees on duty during the same period were 45% less in 1919 than in 1918. The course of the days of disability curve is also shown on the chart from which it will be noted that the average monthly days of disability in 1919 were 170 less than in 1918.

There also has been a downward trend in our fatal cases from 5 in 1917 to 2 in 1919. One of the 1919 cases could not have been prevented. In the other, the human element failed, the accident being due to the stupidity of a fellow-employee.

We naturally feel encouraged over these results. Believing that practically all our mechanical hazards have been guarded, we feel that the results indicated are due, first, to closer co-operation upon the part of heads of departments and foremen; second, to an ever-increasing general interest in accident

(Continued on page 376)



## Associations Affiliated with A. G. A.

### Canadian Gas Association

Pres.—V. S. McIntyre, Kitchener, Ont.  
 V.-Pres.—C. S. Bagg, Montreal, Que.  
           E. H. Caughell, St. Thomas, Ont.  
 Sec.-Tr.—G. W. Allen, 19 Toronto St.,  
           Toronto, Can.  
 Conv., 1920, Aug. 27-28.

### Empire State Gas & Electric Association

Pres.—Horace L. Mann, Buffalo, N. Y.  
 V.-Pres.—H. W. Peck,  
           C. G. M. Thomas.  
 Treas.—E. H. Rosenquest.  
 Sec.—C. H. B. Chapin, 29 W. 39th St., New  
           York, N. Y.

### Illinois Gas Association

Pres.—W. M. Willett, Aurora, Ill.  
 Sec.-Tr.—R. V. Prather, DeWitt-Smith Bldg.,  
           Springfield, Ill.  
 Conv., 1920, March 17-18, Hotel Sherman,  
           Chicago, Ill.

### Indiana Gas Association

Pres.—R. A. Ziegler, Anderson, Ind.  
 V.-Pres.—J. D. Forrest.  
 Sec.-Tr.—E. J. Burke, Citizens Gas Co.,  
           Indianapolis, Ind.  
 Conv., 1920, April 26-27.

### Iowa District Gas Association

Pres.—Geo. D. Roper, Rockford, Ill.  
 V.-Pres.—W. H. Taylor,  
           C. N. Chubb.  
 Sec. Tr.—H. R. Sterrett, Des Moines Gas Co.,  
           Des Moines, Ia.  
 Conv., 1920.

### Michigan Gas Association

Pres.—E. C. Campbell, Benton Harbor, Mich.  
 V.-Pres.—J. W. Batten, Detroit, Mich.  
 Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas  
           Light Co., Grand Rapids, Mich.  
 Conv., 1920.

### New England Association of Gas Engineers

Pres.—W. F. Norton, Nashua, N. H.  
 V.-Pres.—V. E. Bird, New London, Ct.  
           Burton Smart, Portland, Me.  
 Sec.-Tr.—J. L. Tudbury, Salem, Mass.  
 Conv., 1920, Feb. 18-19—Boston, Mass.

### New England Gas Sales Association

Gov.—William Gould, Boston, Mass.  
 Sec.—H. J. Pettengill, Jr., Woonsocket, R. I.  
 Treas.—W. T. Pease, Boston, Mass.

### New Jersey State Gas Association

Pres.—F. R. Cutcheon, Long Branch, N. J.  
 V.-Pres.—Jacob B. Jones, Bridgeton, N. J.  
 Sec.-Tr.—H. E. Mason, Long Branch, N. J.  
 Conv., 1920, April—Philadelphia.

### Pacific Coast Gas Association

Pres.—A. B. Day, Los Angeles, Calif.  
 V.-Pres.—L. B. Jones, San Francisco, Calif.  
 Sec.-Tr.—Henry Bostwick, 445 Sutter St., San  
           Francisco, Calif.

Conv., 1920.

### Pennsylvania Gas Association

Pres.—J. H. Keppleman, Reading, Pa.  
 V.-Pres.—E. L. Smith, Towanda, Pa.  
           Luther Gaston, Lebanon, Pa.  
 Sec.-Tr.—W. O. Lamson, West Chester, Pa.  
 Conv., 1920, April 14-15—Philadelphia.

### South Central Gas Association

(formerly Texas Gas Association)  
 Pres.—P. E. Nicholls, Galveston, Texas.  
 V.-Pres.—C. B. McKinney, Dallas, Texas.  
           F. L. Weissner, San Antonio, Texas.  
 Sec.-Tr.—C. H. Seidenglanz, 1501 Commerce  
           St., Dallas, Texas.

Conv., 1920.

### Southern Gas Association

Pres.—Noble Clay, Winston-Salem, N. C.  
 V.-Pres.—E. S. Dickey,  
           J. H. Haggerty.  
 Sec.-Tr.—M. A. Bowlin, Macon, Ga.  
 Conv., 1920, June 22, 23, 24—Norfolk, Va.

### Wisconsin Gas Association

Pres.—Bruno Rahn, Milwaukee, Wis.  
 Sec.-Tr.—Henry Harman, 182 Wisconsin St.,  
           Milwaukee, Wis.  
 Conv., 1920, March 23-24, Milwaukee, Wis.

## OTHER ASSOCIATIONS

### Natural Gas Association of America

Pres.—Bert C. Oliphant, Buffalo, N. Y.  
 V.-Pres.—Harry J. Hoover,  
           Ogden K. Shannon,  
           H. A. Quay.  
 Sec.-Tr.—Wm. B. Way, 904-5 Oliver Bldg.,  
           Pittsburgh, Pa.  
 Conv., 1920—Buffalo, N. Y.

### Society of Gas Lighting

Pres.—Alex. H. Strecker, Newark, N. J.  
 V.-Pres.—W. Cullen Morris.  
 Sec.—Geo. G. Ramsdell, 130 E. 15th St., New  
           York, N. Y.  
 Treas.—Wm. J. Welsh  
 Conv., 1920.

### Southwestern Electrical and Gas Association

Pres.—Burr Martin, Dallas, Texas.  
 V.-Pres.—A. Hardgrave,  
           C. E. Corder,  
           A. H. Warren.  
 Sec.—H. S. Cooper, Slaughter Bldg.,  
           Dallas, Texas.  
 Treas.—J. B. Walker.  
 Conv., 1920. Hotel Galvez, Galveston, Texas,  
           May 13-15.

## ACCOUNTING SECTION

A. P. POST, Chairman

H. W. HARTMAN, Acting Secretary

A. L. TOSSELL, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

ALDEN, CHARLES A., Boston, Mass.  
BRUNDAGE, H. M., New York, N. Y.  
BRICKSON, HALFORD, Louisville, Ky.  
PETTES, W. H., Newark, N. J.  
POST, A. P., Philadelphia, Pa.  
REES, RICHARD, (Mfr.) Kalamazoo, Mich.  
SCHMIDT, WM., JR., Baltimore, Md.  
SCOBELL, E. C., Rochester, N. Y.  
TOSSELL, A. L., Chicago, Ill.

#### Representing Affiliated Societies

ARMSTRONG, J. J., Toronto, Can. (Canada)  
CHAPIN, C. H. B., New York, N. Y. ( Empire State  
G. & E. Ass'n.)  
EATON, H. M., Detroit, Mich. (Michigan)  
HAASE, EWALD, Milwaukee, Wisc. (Wisconsin)  
HOUGHTON, W. E., Los Angeles, Cal. (Pacific Coast)  
JAMES, F. M., Aurora, Ill. (Illinois)  
MAYNARD, H. B., Waterloo, Iowa. (Iowa)  
MC CARE, J. B., Dallas, Texas. (South Central)  
NORTON, W. F., Nashua, N. H. (N. E. Gas Eng.)  
PORTER, EDW., Philadelphia, Pa. (Pennsylvania)  
POTTER, O. F., Newark, N. J. (New Jersey)  
SHEAKON, B. F., Hammond, Ind. (Indiana)  
STOTHART, E. C., Charleston, S. C. (Southern)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Automobile Cost Accounting**—S. J. PALMER, Chicago, Ill.  
**Merchandise Accounting**—W. A. SAUER, Chicago, Ill.  
**Job Order Systems**—W. G. STERRETT, Chester, Pa.  
Vice-Chairman, F. M. JAMES, Aurora, Ill.  
**Office Labor Saving Devices**—J. L. CONOVER, Newark,  
N. J.  
**Papers**—H. M. BRUNDAGE, New York, N. Y.

**State Representatives**—J. W. HEINS, Philadelphia, Pa.  
**Uniform Classification of Accounts and Form of Annual  
Report to Public Service Commissions**—W. J.  
MEYERS, New York, N. Y.  
**Uniform Accounting Nomenclature**—W. H. PETTES,  
Newark, N. J.

## Committees of the A. G. A. and N. E. L. A. Discuss Accounting Classifications with Representatives of the National Association of Railway and Utility Commissioners

A JOINT conference between representatives of the National Association of Railway and Utility Commissioners and those of the National Electric Light Association and the American Gas Association was held at the office of the State Public Utility Commission in Chicago on April 21 and 22. The purpose of the conference was to present the views of the two utility associations to the committee appointed by the commissioners' association to formulate and recommend to the several state utility commissions uniform systems of accounts to be prescribed by the several commissions. The

representatives of the two utility associations presented the standard classifications developed by their associations and discussed the principles underlying them. The discussion centered principally on two things; first, the proper method of recording and classifying withdrawals or retirements of units of plant and equipment; and second, the proper method of providing through operating expenses for writing off at the time of retirement the book value of the unit retired. On the first question it was agreed by the representatives of the commissioners' association that no benefit results from the

requirement now in force in some states that withdrawals be classified with respect to whether installations were made before or after a specified date and that credits for withdrawals of property installed before the specified date be made to one set of accounts and those representing property installed after that date be made to a different set of accounts. It was agreed that both charges for installations and credits for withdrawals made in any given year should be classified and recorded in the same set of detail accounts, regardless of date of installation, so that the balances in the year's accounts of additions and withdrawals would show the net changes during the year.

With respect to the second question it was the view of the conferees that provision for retirements of units of plant should be made by charges to operating expenses based on the accounting company's history and experience and other pertinent facts, such charges to be credited to a retirement reserve against which

should be charged at the time of retirement the original cost of the units retired less net salvage, and if because of public policy, obsolescence, inadequacy or other sufficient cause any retirement of an unusual or extraordinary character become necessary and the loss thereby involved exceeded the balance to the credit of the retirement reserve, such loss, or any portion of it might, with the consent of the commission having jurisdiction, be charged to a "Property abandoned" account to be amortized through future charges to the retirement reserve account.

A sub-committee was appointed to consider details of the proposed classifications and to report at the earliest practicable date, and a set of balance sheet account titles was worked out and agreed on.

All present felt at the conclusion of the two days' conference that much progress had been made and that an early completion of the work might be expected.

## Machine Bookkeeping for Gas and Electric Companies

WILLIAM A. BENNETT, Chief Clerk, Municipal Gas and Electric Plant, Holyoke, Mass.

**P**ROBABLY the chief reason that the gas and electric companies have been slow to adopt machine bookkeeping is because it would necessitate a change from the bound ledger to a card or loose leaf system. Where a card ledger is already in use the change from hand to machine bookkeeping is not a great one, and does not upset the routine of the office to any great extent.

It has been our aim to eliminate as far as possible any congestion of work in the office and the employment of extra clerks to relieve such congestion. We decided in 1913, shortly after the writer assumed his present duties, to change from the old "Boston" ledgers to a card which would last for five years. Thus instead of mak-

ing up new ledgers for our consumers every year, we would only be obliged to make a new set of cards every five years.

This was done in the face of all sorts of pessimistic prophecies as to the chaotic conditions sure to result from such a radical change. These prophecies we are pleased to say were not fulfilled, and the form of card which we installed has since been adopted by other offices in this vicinity and is I believe giving complete satisfaction.

In 1918, when the time limit of the cards was about reached, our present equipment was installed. With this equipment, while our cards have space for entries for only forty-eight months, by starting each new account on the first

Form 2

## SPECIAL READINGS

JAN 6 1920  
GAS

216 10/30	128	989	11 44	11 44	88	10 56	*1104070
580 12/4	677	39	39	39	03	36	*1865065
5874 12/8	4807	10074	150 91	150 91	10 07	120 84	*2268176
156 12/8	155	14	13	13	01	12	*2268187
464 12/8	464	008					*2461010
1172 12/9	1172	008					*2568110
2376 12/10	2376	39	39	39	03	36	*3066154
1159 10/31	1114	258	3 25	3 25	25	3 00	*3867196
625 11/17	825	004					*4162076
461 12/12	460	14					*4167087
2355 11/20	2313	224	2 86	10 49	13 34	22	*4665132
1040 11/22	1040	008					*5666143
807 12/23	796	118	1 43	25 48	26 91	11	*6102152
659 10/30	536	1234	15 99	15 99	1 23	14 76	*7464135
18206	10922	1284	166 79	35 96	202 75	12 83	*TOTAL
					189 92		

Form 1

## BOOK 18 GAS JAN 12 1920 K G

PRES READ	PREV READ	CONS	AMT	UNPAID	TOTAL	DISCT	NET	*
681 12/5	689	120	1 56		1 56	12	1 44	*
154 12/4	179	150	1 95		1 95	15	1 80	*
3664 12/4	3812	520	6 76		6 76	52	6 24	*
4166 12/4	4168	30	13		13	01	12	*
402 12/4	351	510	6 63		6 63	51	6 12	*
138 12/4	113	250	3 25	78	4 03	25	3 78	*
113 12/4	101	120	1 56		1 56	12	1 44	*
4093 12/4	3964	730	9 25		9 25	71	8 52	*
1164 12/4	1161	30	39		39	03	36	*
652 12/5	636	180	2 08		2 08	16	1 92	*
15409	15151	258	35 54	78	34 32	2 58	31 74	*

Form 3

BOOK No. 68

DATE READ 1/29

PREV. DATE 12/31

POSTED BY MVC

ACCT NO.	PRESENT READING	PREVIOUS READING	CONSUMPTION	OLD BALANCE	CASH	AMOUNT USED	PROFIT AND LOSS		NEW BALANCE
							DEBIT	CREDIT	
FWD	38336	37520	8164	27 03	100 00	97 92	03	09	29 05
72	435	420	154	90	1 75	1 80	054		368
73	147	132	154	16	2 00	1 80			338
74	1000	985	154	13	2 00	1 80			250
75	230	205	250	29	3 00	3 00			154
76	356	346	104	10	1 25	1 20			491
77	717	709	84	45	1 00	96			749
78	709	708	14	61	25	12			1 274
79	590	586	44	1 75	00	46			104
80	461	417	444	63	4 75	5 28			174
81	252	241	114	24	1 25	1 32			794
82	622	622	04	79					274
83	792	792	04	27					
	66020	64651	13694	45 20	165 00	164 28	34	09	46 174

Forms 5-1-9

line of the card and eliminating any waste space, we have a continuous ledger. At the end of the first four years after installation, we will have to make up new cards for only such accounts as have been in the ledger during the entire four years and have been active every month. Thereafter new cards will only be required for such cards as have become filled up during the current month.

Our ledger cards are filed in the same order as the meter readers' sheets, and are divided into the same number of books or routes, each book being a unit in itself, and the account numbers are arranged to allow for unlimited expansion.

Our meter readers' sheet is a cut or overlapping sheet. The upper portion carries the name of the customer, location and number of meter, etc. The insert is arranged to record the monthly readings for two years. When this sheet is used up, we have only to insert a new sheet, thus eliminating the work of making up entire new sheets every two years. When a new account is opened, the sheet placed in the book, remains there until the account is discontinued.

Our meter reading and billing are continuous, and as bills are due ten days from date of delivery the work of the cashiers and the credit postings is also continuous.

As each account is automatically balanced every time an entry is made, the monthly balancing is reduced to a minimum, and the flow of work through the office is as continuous as it is possible to make it.

I have given the above general description of our methods before going into the details of the work done by the machines in the hope that I might answer in advance as many as possible of the questions that may be asked as a result of this article.

When we installed our Elliott-Fisher bookkeeping machines about two years ago, we were sending out about 9000 bills per month. The readings and consumption were entered on the bill by hand, the amount stamped with computing stamps on the bill and stub. The amount of the bill was then posted from the bill to the ledger card by hand; both bills and cards were added by machine and the totals checked against each other. When the bills were paid, the date, discount and cash were entered on the cards by hand. The total amount billed each day and the total of discount and cash each day for each book were entered on the master cards. After finishing the posting for the last day of the month, the individual balances were extended on the cards, summed by machine, and the total balance for each book checked with the balance shown by the master card for that book. The balancing was rarely completed by the fifteenth of the month, and usually not before the twentieth.

We had two clerks billing all the time, another part of the time, and two posting all the time. Our business had grown to a point where it would soon be necessary to have three clerks billing and three clerks posting. We therefore decided to investigate the possibilities of machine bookkeeping as applied to our particular case, and the writer gave the question much time and study.

After visiting several offices where bookkeeping and billing machines of different types were in operation we decided that the Elliott-Fisher machines were best suited to our needs. The machines have been in use now for over two years and we have had no occasion to regret our investment. Instead of engaging three more clerks we have added more than 1000 new accounts without increasing the number of clerks employed, and are equipped to handle a still larger in-



crease without any increase of clerks or equipment.

We are also able to keep up the work during the vacation season when we have two clerks at a time away from the office for over two months, by employing one substitute clerk instead of three as formerly.

During my investigation of the possibilities of machine bookkeeping, I found gas and electric companies using the Burroughs billing machine, the Elliott-Fisher bookkeeping machine, and one company with a specially built Underwood billing

machine. All are apparently giving very satisfactory service, and I am sure that where the volume of work warrants the investment, the installation of any of the various billing or bookkeeping machines is a step forward. Care should of course be exercised in selecting the machine best adapted for the work which it is expected to accomplish.

Our equipment consists of four machines,—two are used on billing, one on credit posting and one for the prepay meter records.

The billing machines have eight regis-

## FORM 3

				ACCT NO. 9119					
M A LYMAN 85 MERCER ST 1899119				LOCATION Store					
				MFR'S NO. 6c1842		SHOP NO. 423			
				SIZE 3		MAKE			
				SECURITY G		CONSTANT			
		DATE	PRES. READING	DATE	PREV. READING	CONSUMPTION	AMOUNT	UNPAID	TOTAL
1919	DR	3/7	506	1/29	490	16*	2 08		2 08
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
	DR.	4/4	517	3/7	506	11*	1 43	2 08	3 51
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
					4/10	3 51	11	3 40*	
	DR.	5/7	535	4/4	517	18*	2 34		2 34
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
					5/26	2 34		2 34*	
	DR.	6/6	550	5/7	535	15*	1 95		1 95
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
					7/1	1 95		1 95*	
	DR.	7/7	562	6/6	550	12*	1 56		1 56
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
					7/31	1 56		1 56*	
	DR.	8/6	573	7/7	562	11*	1 43		1 43
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
				9/3	1 43		1 43*		
DR.	9/5	584	8/6	573	11*	1 41		1 43	
CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE	
				9/25	1 43	11	1 32*		
DR.	10/6	600	9/5	584	16*	2 08		2 08	
CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE	
				10/21	2 08	16	1 92*		
DR.	11/5	623	10/6	600	23*	2 99		2 99	
CR.				DATE	CLD BAL.	DISC'T	CASH	BALANCE	
				11/24	2 99	23	2 76*		
DR.	12/5	636	11/5	623	13*	1 69		1 69	
CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE	
				12/26	1 69	13	1 56*		
1920	DR.	1/5	652	12/5	636	16*	2 08		2 08
	CR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE
					1/24	2 08	16	1 52*	
	DR.				DATE	OLD BAL.	DISC'T	CASH	BALANCE

ters and a cross-footer and the work done in detail is as follows:

The machine holds three sheets of carbon on rolls; the proof sheet (Form 1), is placed under the lower sheet of carbon; the bill (Form 2), is placed between the lower and middle sheet of carbon with the stub folded over to come between the middle and upper sheets of carbon; the writing bed of the machine is depressed, and the ledger card (Form 3), is inserted flush against the left hand side of the machine which acts as a straight edge. As the card is two columns narrower than the bill, the upper sheet of carbon is correspondingly narrower than the other sheets and the last two columns of the bill are in sight, which simplifies the exact aligning of the ledger card and bill.

We are now ready to make our first entry and proceed as follows: Write date

of present reading; tabulate to first register; write present reading; this is taken from the meter reader's sheet (Form 4), and is registered in the first register and in the cross-footer; write date of previous reading; tabulate to next register; write previous reading; this is taken from the previous entry on the card, the amount is registered in the second register and automatically subtracted from the previous amount and the difference shown in the cross-footer; tabulate to next register; write amount consumed followed by the clear signal (\*); this amount is registered in the third register and automatically subtracted from the cross-footer leaving the machine clear. If an error has been made and the cross-footer is not clear, the signal is locked and cannot be written. Tabulate to next register and write gross amount of bill (consumption times .13) which amount

## FORM 4

## NAME OF CONSUMER

M. A. LYMAN  
65 MERCER ST  
18G9119

LOCATION Store	SIZE 8	MAKE McD	OUR NO. 423	MFR 'S NO. 601841							
DATE		INDEX		DATE		INDEX					
DEC.	28	4	7	4	DEC.	5	6	3	6		
1919 JAN.	29	4	9	0	16	1920 JAN.	5	6	5	2	16
FEB.					FEB.						
MAR.	7	5	0	6	16	MAR.					
APR.	4	5	1	7	11	APR.					
MAY	7	5	3	5	18	MAY					
JUNE	6	5	5	0	15	JUNE					
JULY	7	5	6	2	12	JULY					
AUG.	6	5	7	3	11	AUG.					
SEPT.	5	5	8	4	11	SEPT.					
OCT.	6	6	0	0	16	OCT.					
NOV.	5	6	2	3	23	NOV.					
DEC.	5	6	3	6	13	DEC.					

CITY OF HOLYOKE GAS AND ELECTRIC DEPARTMENT

Form 7

JAN 24 1920		OLD BAL	DISTCT	CASH	NEW BAL
000K 8	1/24	12 87	99	11 880	
000K 10	1/24	1 56	12	1 440	
	1/24	1 95	15	1 800	
		3 51	27	3 240	
000K 11	1/24	2 60	11	2 490	
000K 14	1/24	12 48	96	11 520	
000K 15	1/24	3 90	30	3 600	
	1/24	2 60	20	2 400	
		6 50	50	6 000	
000K 16	1/24	2 08	16	1 920	
000K 19	1/24	5 20	40	4 800	
000K 20	1/24	26	02	240	
000K 22	1/24	2 34	18	2 160	
000K 24	1/24	5 85	45	5 400	
000K 26	1/24	5 85	45	5 400	
	1/24	15	01	130	
		5 90	46	5 520	
000K 36	1/24	3 12	24	2 880	
000K 41	1/24	5 72	44	5 280	
000K 72	1/24	4 55	35	4 200	

Form 8

JAN 24 1918

SUMMARY

000K 8	12 87	99	11 880
000K 10	3 51	27	3 240
000K 11	2 60	11	2 490
000K 14	12 48	96	11 520
000K 15	6 50	50	6 000
000K 16	2 08	16	1 920
000K 19	5 20	40	4 800
000K 20	26	02	240
000K 22	2 34	18	2 160
000K 24	5 85	45	5 400
000K 26	5 90	46	5 520
000K 36	3 12	24	2 880
000K 41	5 72	44	5 280
000K 72	4 55	35	4 200
	75 06	3 53	67 530

Form 9

PLEASE REPLY THIS BILL WITH YOU

Holyoke, Mass.

To City of Holyoke, Gas and Electric Department, Dr.

DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	DATE	AMOUNT	
1/24	600	12/3	635	10/3	2 00	2 00	10	1 32	2 00	2 00	10	1 32

M A LYMAN  
65 MERCER ST  
1809119

M A LYMAN  
65 MERCER ST  
1809119

ORDERED: 10:00 A.M. TO 12 P.M. FIRST SATURDAY, 9 A.M. TO 12:00 P.M. THURSDAY, 9 A.M. TO 12 P.M.  
IN CASE OF TROUBLE CALL UP 280 OR 281

20 cents to be paid at the office, City Hall.  
A discount of 10 cents per month's rate  
may be allowed, if paid within 10 days from  
date of bill, provided there are no unpaid  
bills on this account.  
PENALTY 10% on amount over 10 days.

Forms 7-8-2-11

Form 11

NAME

ADDRESS

ACCOUNT NO.

METER NO.  
278476SIZE  
3NAME  
JLOCATION  
R-2

Account No. 1

1

Account No. 1

1

Index

00

Index

00

Am't Collected

Am't Collected

Credit Dial

Credit Dial

Date Indexed and Collected

Date Indexed and Collected

By

By

Account No. 1

1

Account No. 1

1

Index

00

Index

00

Am't Collected

Am't Collected

Credit Dial

Credit Dial

Date Indexed and Collected

Date Indexed and Collected

By

By

Account No. 1

1

Account No. 1

1

Index

00

Index

00

Am't Collected

Am't Collected

Credit Dial

Credit Dial

Date Indexed and Collected

Date Indexed and Collected

By

By

must be computed by the operator, is registered in the fourth register and in the cross-footer; tabulate to next register; write unpaid balance if any; this amount is registered in the fifth register and is automatically added to the amount in the cross-footer; tabulate to next register and write total amount of bill as shown in cross-footer; this amount registers in the sixth register but does not affect the amount shown in the cross-footer; tabulate to next register and write amount of discount (consumption times .01); this amount registers in the seventh register and is automatically subtracted from the cross-footer; tabulate to last register and write net amount as shown in cross-footer; tabulate to next stop which is clear of the bill and write clear signal. If an error has been made, and the machine is not clear, the clear signal is locked and cannot be written.

It will be noted that the "Total" is the last amount written on the card, and this represents the balance due. The amount written in the last column of the card when an entry is made, whether it be a debit or credit entry, is the balance due. Thus the account is balanced, and the balance mechanically proven every time an entry is made.

Let us assume that we have finished billing book 18 for January and are ready to prove our work. Reading from the registers, we copy the totals as shown on proof sheet (Form 1). The first total—15409—is the total of the present readings; subtracting from this the second total—15151—(total of previous readings) gives us a proof of the third total, or amount consumed—258—; multiplying this by the rate (.13) proves the next total—\$33.54—; the next total "Unpaid," is the same as the balance shown by the master card; the next total "Total" is the sum of the "Amount" and "Unpaid" totals; the next total "Dis-

count" is the total consumption times .01; the next total "Net" is the difference between "Total" and "Discount," or this net total less the unpaid items—\$30.96 is 12 times the amount consumed, the net rate being \$1.20 per thousand or 12¢ per hundred.

We are now sure that our bills and ledger postings are correct, and the bills are passed to the delivery clerk to be dated and delivered, and the proof sheets are passed to the ledger clerks to be entered on the master cards, and filed in a binder.

Special readings, corrections, etc., are kept on a separate sheet and posted to the master cards each day. (See Form 5.)

The credit posting machine has only four registers and a cross-footer. After writing the date the balance due as shown by the ledger card is written, registered in the first register and in the cross-footer; the discount and cash as shown by the stub are written, registered in the second and third registers and automatically subtracted from the cross-footer; if the account is paid in full the machine is clear and the clear signal is written; if there is still a balance due, the amount is written in the last column and registered in the last register. The proof sheet (Form 7) gives us the totals of cash and discount for the book, which are posted to the master card. The daily summary (Form 8) gives us the total postings for the day, and the total of cash is checked with the total cash received by the cashiers. Credits are written in red, debits in black.

The operation of balancing does not, I think, require any extensive explanation. The total of the individual balances in book 18, for instance, when totaled by adding machine, should be \$4.08, as shown by the master card (Form 6).



FORM 6  
MASTER CARD BOOK NO. 18

JANUARY GAS						1920					
Date	DEBIT	CREDIT	DISC'T	CASH	BALANCE	Date	DEBIT	CREDIT	DISC'T	CASH	BALANCE
1					3125						
2				1703							
3			21	252							
6	39			156							
7											
12	3354			507							
16			96	1230							
19			12	144							
22			04	48							
23			16	192							
24			130	1560							
26				39							
31	3393		279	5831	408						
FEBRUARY GAS											
1					408						

In our actual work, the only headings on the proof sheets are the date, book number, and the initials of the operator. I have written the other headings in to aid in my explanation.

The records of our prepayment meters, of which we have over 10,000, are kept on a loose leaf sheet (Form 9). This sheet, with the balance sheet (Form 10) have replaced our prepayment ledgers.

Our prepay meter sheet (Form 11) is in coupon form, one coupon for each month. When the books are read and turned in, the coupons for the current month are detached, the collections totaled and balanced with the cash turned in.

When posting these accounts, the operator has before her the corresponding sheet for the previous month. The recording of the present reading, previous reading and consumption are the same as for the regular meters, the present reading being taken from the coupon, and the previous reading from the previous month's sheet.

After writing the consumption and clearing the machine, we write the "Old Balance" which is the credit balance due the consumer; to this is added the amount collected, and from the total of these amounts is deducted the charge for

the amount used, giving us the new credit balance due the consumer.

The Profit and Loss columns are used as follows: Suppose we are posting account No. 72 in Book No. 68 (Form 7); adding the old balance and the amount collected we have \$1.75; subtracting from this the amount used, \$1.80, we have in our cross-footer the figures 9999.95, showing by complement a loss of .05 on this account. Writing this amount in the debit Profit and Loss column balances the account and clears the machine.

The following month, when this account is posted, it will be noted that there was a debit of .05 last month, and this amount will be credited to Profit and Loss and deducted from the balance due the consumer.

In proving this work the first three columns are proven in the same manner as the regular meters. The "old balance" total is the same as the "new balance" total of the previous month; the cash total checks with the amount of cash received, and the amount used is the consumption multiplied by the rate.

I would advise prospective users of bookkeeping machines not to expect too much from the machines. I am not now referring to any particular type of machine. It has been my experience and

the experience of others who have installed machines of different types that we are apt to become too optimistic of the results to be accomplished after listening to the prophecies of the salesmen. I will own that I had dreams of one clerk with a machine doing the work formerly done by two clerks, and looking for something else to do to fill in her spare time. But I soon woke up.

Until the use of bookkeeping machines becomes so general that their operation is taught in our various institutions of business education, one of the objections to their installation will be the length of time which it takes for an operator to develop the speed necessary to get the anticipated results. There were times during the first six months of our experience when it seemed as though we would always be behind in our work. We have had no serious trouble since then, and to guard against such trouble we have eight clerks who are familiar with the operation of the machines, while we have only four machines. This is a result of occasional interchange of work between the regular operators and the other clerks in the office.

You will perhaps be told that with the machines installed your office pay-roll will be reduced because you will not need first-class clerks, as the machine does most of the work and anyone can learn to operate it. This is absolutely wrong.

There must necessarily be some mental work in connection with the billing and posting, and the speed of the operator depends upon how quickly and accurately she can perform the mental computations. On our work, or for similar work requiring the same number of operations, I consider forty-five bills per hour a fair average. This is by no means a maximum speed but is a fair average day by day.

I would also advise that some one connected with the office become familiar with the mechanical operation of the machines. It has been my experience, not only with the bookkeeping machines but with all the machines used in our work, that a great deal of lost time can be saved by having some one on the premises who can adjust and make minor repairs. I find that when an inspector is called, he usually feels obliged to overhaul the entire machine, which takes at least an hour or two, when the immediate trouble might easily be adjusted in a few minutes.

We will be pleased to explain further, or show our installation to anyone who is interested, as we are eager to prove that although we are a Municipal venture, and as such, popularly credited with being a nest of inefficiency, we have some ideas which may be worth copying by our more efficient brethren.

Form 10

		BOOK NO.		BALANCE SHEET FOR JANU 1920		DATE READ		PREV. DATE		POSTED BY	
ACCT NO.	PRESENT READING	PREVIOUS READING	CONSUMPTION	OLD BALANCE	CASH	AMOUNT USED	PROFIT AND LOSS		NEW BALANCE		
							DEBIT	CREDIT			
BOOK 1			1279	32 64	152 50	153 48	1 06	11	32 61		
BOOK 2			1082	40 71	135 00	129 84	21	26	45 82		
BOOK 3			1385	53 52	166 75	166 20	49	16	56 40		
BOOK 4			1441	48 81	173 50	172 92	31	28	49 42		
BOOK 5			1520	55 44	187 75	182 40	21	16	60 84		
BOOK 6			1892	53 47	231 25	227 04	33	08	57 93		
BOOK 7			1483	37 48	179 75	177 96	29	42	39 14		
BOOK 8			1737	53 15	211 00	208 44	06	34	35 43		
BOOK 9			1838	46 97	223 50	220 56	89	71	50 09		
BOOK 10			1344	46 43	165 25	161 28	89	35	50 94		
TOTAL			118619	3207 12	14301 25	14234 28	30 23	20 63	3283 69		

Form 10

## ADVERTISING SECTION

GEORGE WILLIAMS, Chairman

CHAS. W. PERSON, Secretary

M. C. ROBBINS, Vice-Chairman

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#### At Large

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CLARK, WM. J., Mt. Vernon, N. Y.  
COLLINS, D. J., Philadelphia, Pa.  
GOULD, WM., Boston, Mass.  
GRIBBEL, W. G., Philadelphia, Pa.  
HANLAN, JAMES P., Newark, N. J.  
MCDONALD, DONALD, New York, N. Y.  
MULLANEY, B. J., Chicago, Ill.  
ROBBINS, M. C., New York, N. Y.  
ROPER, GEO. D., Rockford, Ill.  
RUTLEDGE, F. J., Philadelphia, Pa.  
WILLIAMS, GEORGE, New York, N. Y.

#### Representing Affiliated Societies

ALLEN, GEO. W., Toronto, Can. (Canadian)  
AUSTIN, E. E., Sumter, S. C. (Southern)  
FRANKLIN, S. J., Millville, N. J. (New Jersey)  
FUGATE, FRANK, Detroit, Mich. (Michigan)  
HIGGINS, A. A., Providence, R. I. (New England)  
JASPERSON, R. O., Chicago, Ill. (Wisconsin)  
LESTER, F. M., Chicago, Ill. (Illinois)  
MANTLE, G. D., Oakland, Cal. (Pacific Coast)  
MARTIN, E. H., Des Moines, Ia. (Iowa District)  
MULHOLLAND, S. E., Fort Wayne, Ind. (Indiana)  
ROLSTON, R. J., Philadelphia, Pa. (Pennsylvania)

## It Works for Others: Why Not Make it Work for You

**S**PEAKING of publicity and its value to electric railway companies of the country, W. Dwight Burroughs, of the United Railways and Electric Company of Baltimore, said recently:

"This growing appreciation by railway managements of the value of public limelight is due to two things:

First.—A realization that the people are entitled to know.

Second.—That it is not going to hurt, but is going to aid the company, to help the people know.

"There is nothing to fear from information that we give the public. Our great danger lies in misinformation that some persons are all too eager to circulate. The antidote for this is to fill the minds of the public with the truth backed by honest practice and service.

"It is so very easy to understand that the best interest of a street railway is to properly serve the people that there can be but one answer to the question why does any part of the public assume that

the company is antagonistic to the people, arbitrarily set against them, contrary minded and obdurate? And that answer is, the people do not know. They have not been taught to think kindly of corporations generally, and they have had many opportunities to be misinformed concerning street railways in particular.

"No public service corporation will ever be free from unjust attacks. There is no earthly possibility of the extinction of the fanatics, grouches and unreasonable people who constitute an ever-present thorn in the side of everything good. But the vast majority of the people are reasonable, if one can reach them and direct their reasoning into correctly chartered channels, and this directing must be done by service and publicity.

"Once we gain public confidence we have the greatest lever on earth for successful business. Then we must be fair and square in our publicity or we will damage the cause just as any business man who fools or trifles with the public loses its confidence, esteem and support."

## Creating Public Good Will Through a Home Economics Department

THE New Haven Gas Light Company has met with such marked success in its manner of co-operating with the New Haven people through their churches, clubs and various social and business organizations, that Mr. Philmer Eves, advertising manager of the company, thinks the time is ripe to inaugurate a Home Economics Department under the supervision of the Advertising Section of the A. G. A. for the purpose of carrying on in a national way the work that his company is doing.

Mr. Eves' suggestions will be considered at the next meeting of the Managing Committee of this Section, but in the meantime we are glad of the opportunity to describe his work in New Haven in these pages with the idea that it will be of value to those who are engaged in similar work throughout the country.

A very fortunate condition exists in New Haven, in that the company does not go to the people but the people go to the company. Several times a week talks and illustrated lectures are given on subjects relating to gas and the use of gas-burning appliances. Every Wednesday afternoon, in the company's assembly room, a domestic science expert gives free demonstrations in cooking. The attendance in 1918 was 3,909, and in 1919 it was 3,971. The cost of provisions and groceries for these demonstrations was only \$72.85 a year.

During the month of June lessons in canning are given, and for June of last year there were 76 telephone calls, 85,000 folders distributed and 189 women present at the first meeting, which was the smallest meeting of the month. One department store in New Haven sold 4,500 dozen jars for canning fruits and

vegetables and credited the company's meetings with this abnormal demand. These lessons were followed by instructions in the war-time conservation of foods, including the French, English and Belgium methods of making potato pastry; the preparation of sea foods selected by the Food Administration; children's meals; sugar substitutes and special suppers for Thanksgiving, Christmas, St. Valentine's Day and other holidays. The company's instructor in the Home Economics Department visits the homes at the time these lectures are given and explains the operations of the gas-burning appliances as well as the economical use and preparation of foods.

After looking over the list of clubs and other organizations in New Haven which use the assembly room of the company for their meetings, one is prompted to ask the question: "Is there a club somewhere in town which doesn't meet there?"

For instance, the Home Economics Department of the New Haven Woman's Club holds monthly meetings in the assembly room, at which demonstrations are frequently given. There were 127 women present at one of these meetings, and as is the rule rather than the exception, an informal tea is served by the company.

The Jewish Council of Women meet there. So does the New Haven County Farm Bureau, at which time competent authorities talk on wheat substitutes, the conservation of wool and its effect upon clothing, and other subjects. The members of the Housewives League also meet there to discuss problems and economies of marketing. This League already has established a market in the city where



vegetables and fruits can be purchased by the public from farmers at a comparatively low cost.

The King's Daughters, a church organization, uses the assembly room for the sale of home-made foods and for public luncheons presided over by ladies of the various churches. The average number present at these functions is about 130. The Sunshine Society also meets there once a month. At the International Convention of Sunshine Societies held in New York City recently, public reference was made with a general expression of gratitude to the New Haven Gas Light Company for its co-operation and generosity. Other organizations holding their meetings there are the Architects' Club, the Power Squadron, Boy Scout Executives and Daughters of the American Revolution.

The women employees of stores and offices have formed an Economy Club and each Monday evening they have a supper and meeting in the assembly room. Of course, the employees of the company attend lectures and hold dances in the room and there are classes for women employees to take up cooking, marketing and home-making in general.

Mr. Eves says that this co-operative work has reflected itself in 310 press notices published in 1918; 392 in 1919, and 147 up to March 31st of this year. The company's business has been increased, he says, and a helpful spirit of good will is in evidence.

### **"Essentials of a Sound Policy as to the Public Utility Investor."**

Although copies of Judge Ransom's address, "Essentials of a Sound Policy as to the Public Utility Investor," have been sent to all of our member companies, it is reprinted in this issue of the MONTHLY because it should be read, and carefully, by every gas company official and executive in the country. And it should be placed in the hands of city and state officials, students and teachers, and all of those by whom it is important that this phase of the public utility situation be clearly understood. The address is available in pamphlet form for \$5. per hundred in lots of one hundred, and \$40 per thousand in lots of one thousand.

### **New Indiana Standard**

Indianapolis, April 24.—A new heat standard of 570 British thermal units per cubic foot of artificial gas is established for Indiana in an order of the Public Service Commission put out to-day. The order carries rules governing gas company service. The commission has been working on the rules almost two years. They are said to contain regulations based on the most approved and practical experiences. The order permits the quality of the gas to vary from the standard to 600 units maximum, and to 540 units minimum, but the monthly average must be 570 units. (*News Dispatch.*)

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### **Obituary.**

William N. Pearson, a pioneer in the gas industry died at his home in Toronto, Ont., April 12th, in his 89th year. Mr. Pearson was the General Manager of the Consumers' Gas Company in that city for nearly forty years and was active in many public spirited enterprises. In 1888 he became a member of the American

Gas Light Association, contributing much to the interest of its meetings and became its President in 1894. He was also a life member of the American Gas Institute. The record of the Consumers' Gas Company is an enduring monument to his skill as a gas engineer and a broad-minded, enterprising executive.

This is an Advertisement of The Gas & Electric Co.

# PERSONAL

## SITUATIONS WANTED

WILL CLEAN  
ALL THE ROOMS  
OF YOUR HOUSE  
QUICKLY AND WELL.  
WILL WORK DAY  
AND NIGHT—  
AS MANY HOURS AS  
YOU WANT ME.  
**EUREKA ELECTRIC VACUUM  
CLEANER.**  
APPLY  
**THE GAS & ELECTRIC CO.**

WANTED—  
JOB DOING ALL YOUR  
FAMILY WASHING.  
WILL SAVE YOU TIME,  
MONEY AND CLOTHES.  
**EDEN ELECTRIC WASHING  
MACHINE.**  
**THE GAS & ELECTRIC CO.**

COMFORT—What comfort there is in the clean,  
dry heat of an Electric Heating Pad. Every  
house needs one to reduce the hot-water  
bills. **THE GAS & ELECTRIC CO.**

HOT WATER  
WHEN YOU WANT IT.  
I'LL FURNISH ALL THE HOT  
WATER YOU WANT.  
JUST TURN THE FAUCET.  
AUTOMATIC  
GAS WATER HEATER.  
**THE GAS & ELECTRIC CO.**

TOASTER—Breakfast is never tardy when I'm at  
your command. I make toast in a jiffy. All you  
want. An Electric Toaster. **THE GAS &  
ELECTRIC COMPANY.**

IMPORTANT—As a factor in table cookery an  
Electric Grill is of the utmost importance. **THE  
GAS & ELECTRIC COMPANY.**

TIRELESS—An Electric Toaster is a tireless  
electric servant. **THE GAS & ELECTRIC CO.**

IRONING—I'll do your ironing quickly and well.  
Electric Iron. **THE GAS & ELECTRIC CO.**

## HOUSEHOLD HELP

BETTER WORK—Will do a week's ironing in  
a few hours. An Electric Iron. The Gas &  
Electric Co.

WANTED—Sewing to do. Dependable. Will  
work all day at a very small cost. An Electric  
Sewer. The Gas & Electric Co.

COOK—Prepare breakfast the electric way. **Electric  
Toaster-Stove.** The Gas & Electric Co.

COOK—Prepare luncheon in any room where  
there's an electric outlet—with an Electric Grill.  
The Gas & Electric Co.

COOK—Will prepare toast, eggs, bacon or chops  
right at the table with an Electric Grill. The  
Gas & Electric Co.

COOK—Just see what this toast an Electric  
Toaster makes. The Gas & Electric Co.

COOK—With gas.  
**TIRELESS WORKER.**  
I'll work all day, any time at  
night; never want a vacation;  
never away from the house. You  
should own an

**ORIOLE GAS RANGE.**  
**THE GAS & ELECTRIC CO.**

**PAY AS YOU SAVE.**  
You can save time, money and work with an  
Eden Electric Washing Machine. No money  
down. A Year to Pay. The Gas & Electric Co.

**SAVE YOUR TIME—The Eureka Electric  
Vacuum Cleaner.** The Gas & Electric Co.

**HOTTER CLEANING—Will do all your spring  
house cleaning at a very small cost. Eureka Elec-  
tric Vacuum Cleaner.** The Gas & Electric Co.

**SPARE TIME—You'll have time for recreation  
if you use an Electric Sewer.** The Gas &  
Electric Co.

**COOKING—Cooking and baking done econom-  
ically and well. Oriole Gas Range.** The Gas &  
Electric Co.

**LIGHT WORK. — A Gas or  
Electric Lamp selected in The  
Lighting Studio, second floor, will  
serve you for years.**

**THE GAS & ELECTRIC CO.**

**YOU NEED AN EDEN.**

**PERSONALS**

**NOTICE.**

If you turn in your old gas range on the purchase  
of a new model Oriole Range you'll receive a  
credit of \$50. Your old range must be in use and  
have two ovens. Here's a chance to save \$50. The  
Gas & Electric Co.

**HOUSEKEEPERS.**

Have something clean from your ironing board to  
the stove and back by using an Electric Iron. It  
makes ironing a pleasure. The Gas & Electric Co.

## BUSINESS OPPORTUNITIES

### OPERATING CENTER.

The kitchen is the operating center of the home.  
Of great help to the modern housewife is a Gas  
Water Heater. A special sale now in progress.  
The Gas & Electric Co.

THE PROBLEM of wash day is solved with a  
Eden Electric Washing Machine. You need an  
Eden. The Gas & Electric Co.

YOU need an Eden. The Gas & Electric Co.

**BUY.**

**BUY THE EUREKA WITHOUT DELAY. IN  
MONEY DOWN, A YEAR TO PAY. THE GAS  
& ELECTRIC CO.**

**EUREKA—We have found it! The electric  
vacuum cleaner that will do all your work—Eden  
Eureka.** The Gas & Electric Co.

**SAVE—A chance to save \$10. Turn in your  
old gas range on your purchase of a new model  
Oriole and receive a credit of \$10. The old range  
must be in use and have two ovens. The Gas &  
Electric Co.**

**FINE—Always ready for use in any room where  
there is an electric light socket—and Electric  
Heating Pad.** The Gas & Electric Co.

**PROFITS—USING AN ELECTRIC IRON  
MEANS A BIG SAVING OF TIME AND EFFORT.** THE GAS & ELECTRIC CO.

**FOR SALE**

**EUREKA ELECTRIC  
VACUUM CLEANER.**  
No money down. A Year to Pay.  
The Gas & Electric Co.

**YOU NEED ONLY**

**A SMALL SUM**

**EACH MONTH TO BUY A LARGE NUMBER OF  
ELECTRIC APPLIANCES THAT WILL  
HELP YOU TO KEEP HOUSE FOR A  
LIFETIME. — ELECTRIC IRON, ELECTRIC  
TOASTER-STOVE, ELECTRIC SEWER, EUREKA  
VACUUM CLEANER, THE GAS & ELECTRIC  
CO.**

**WANTED—The modern housewife to use all the  
beautiful gas and electric lamps in The Lighting  
Studio, Second Floor, Lexington Bldg.**

**FOR SALE—The most modern gas range obtain-  
able—the new model Oriole Gas Range.** The Gas  
& Electric Co.

**FOR SALE—The Eden Electric Washing Machine.  
When you want it. The Gas & Electric Co.**

**FOR SALE—The Royal Electric Vibrator—See  
sample when you want it. The Gas & Electric Co.**

**FOR SALE—Electric Fan. Electric Co.**

**YOU NEED AN EDEN.**

**LOST AND FOUND**

**TIME—Lost last Monday several hours' time  
which could have been used more profitably. No  
there's no Eden Electric Washing Machine in my  
house. The Eden is for sale by the Gas & Electric  
Company.**

## A Combination Display and Want Ad. Advertisement

The Consolidated Gas, Electric Light and Power Company, of Baltimore, has struck a new note in gas-company advertising with its display advertisement of 100 want ads., part of which is reproduced above.

It is said that the display-want ad. has been done before, with good and indifferent results, but this is the first time within our recollection that anything of the kind has been attempted by a gas company. The arrangement lends itself

particularly to the display of gas and electric appliances.

The advertisement contains about one hundred classified ads., all similar in style, but varied and clever enough to make interesting reading. The word "Personal" is set in 60-point caps, full width, and the want ads. are arranged in three columns, an exact reproduction in type and arrangement of the regular classified section of the paper. The advertisement is signed by "The Gas & Electric Co., Lexington Building, St. Paul 8000."

## COMMERCIAL SECTION

C. A. MUNROE, Chairman

LOUIS STOTZ, Secretary

J. P. HANLAN, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

BARROWS, GEO. S., Providence, R. I.  
 BARTLETT, C. E., (Mfr.) Philadelphia, Pa.  
 BENNITT, GEO. E., New York, N. Y.  
 BOND, C. O., Philadelphia, Pa.  
 BUCKMINSTER, ROLLIN, Pawtucket, R. I.  
 BURNS, J. J., St. Louis, Mo.  
 CHRISTMAN, H. S., Philadelphia, Pa.  
 CLARK, H. H., Chicago, Ill.  
 CLARK, W. J., Mt. Vernon, N. Y.  
 DAVIES, J. E., Chicago, Ill.  
 DODSON, H. K., Baltimore, Md.  
 DOULL, R. S., New York, N. Y.  
 ELSMAN, RALPH, Brooklyn, N. Y.  
 GASTON, LUTHER, Spokane, Wash.  
 GOULD, WM., Boston, Mass.  
 HUNTER, HARRY W., (Mfr.) Baltimore, Md.  
 JARDINE, BERT H., Knoxville, Tenn.  
 JASPERSON, R. O., Chicago, Ill.  
 KARSHNER, G. M., New York, N. Y.  
 KING, THOMSON, Baltimore, Md.  
 KNAPP, F. H., (Mfr.) Pittsburgh, Pa.  
 LOEBELL, H. O., New York, N. Y.  
 MACSWENEY, J. P., Rochester, N. Y.

MAXOW, H. R., (Mfr.) Muncie, Ind.  
 MUNROE, C. A., Chicago, Ill.  
 MYERS, J. B., Philadelphia, Pa.  
 PEFFLY, I. W., (Mfr.) New York, N. Y.  
 PETTENGILL, H. J., Jr., Woonsocket, R. I.  
 FISER, THEO. H., Boston, Mass.  
 POST, A. P., Philadelphia, Pa.  
 RASCH, W. T., New York, N. Y.  
 STANNARD, CLARE N., Denver, Colo.  
 TRUMBULL, G. R., New York, N. Y.  
 VINCENT, G. I., Syracuse, N. Y.  
 WRIGHTINGTON, E. N., Boston, Mass.

#### Representing Affiliated Societies

BARTON, WM. H., Portland, Ore. (Pacific Coast)  
 BORDEN, A. W., Hastings, Nebr. (Iowa Dist.)  
 BOWLIN, M. A., Jacksonville, Fla. (Southern)  
 BRANDES, JEROME, Chester, Pa. (Pennsylvania)  
 BURKE, E. J., Indianapolis, Ind. (Indiana)  
 CHAMBERLAIN, G. R., Grand Rapids, Mich. (Michigan)  
 CRAFTS, H. C., Pittsfield, Mass. (N. E. Gas Eng.)  
 FLAUT, J. J., New Orleans, La. (South Central)  
 HANLAN, J. P., Newark, N. J. (New Jersey)  
 MCINTYRE, W. H., Ont., Can. (Canada)  
 ST. JOHN, JOHN, Madison, Wisc. (Wisconsin)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Sales Development**—WM. GOULD, Boston, Mass.  
**Compensation (Sub)**—G. M. KARSHNER, New York, N. Y.  
**Filing in the Valleys in Gas and Appliance Sales (Sub)**—  
 WM. GOULD, Boston, Mass.  
**Maintenance (Sub)**—ROLLIN BUCKMINSTER, Pawtucket,  
 R. I.  
**Putting Non-Profitable Consumers on a Profitable Basis**  
 (Sub)—B. H. JARDINE, Knoxville, Tenn.  
**Sales Campaigns (Sub)**—H. J. PETTENGILL, Jr., Woon-  
 socket, N. Y.  
**Work Schedule (Sub)**—G. I. VINCENT, Syracuse, N. Y.  
**Gas Lighting**—THEO. H. FISER, Boston, Mass.

**Heating**—GEO. E. BENNITT, New York, N. Y.  
**Industrial Fuel Sales**—H. H. CLARK, Chicago, Ill.  
**Furnace Performance Standards (Sub)**—I. LUNDGAARD,  
 Rochester, N. Y.  
**Improvement of Atmospheric Burners (Sub)**—JEROME  
 BRANDES, Chester, Pa.  
**Proportional Mixing (Sub)**—CHAR. C. KRAUSSE, Balti-  
 more, Md.  
**Recuperation and Regeneration (Sub)**—H. O. LOEBELL,  
 New York, N. Y.

## Sales Development Committee Presents Definite Recommendations

At a meeting of the Sales Development Committee, held at Association Headquarters on April 30, there were present Messrs. Gould, Robbins, Eves, Hanlan, Higgins, Vincent, Macbeth, Karshner, Griffiths, Stetser (the latter representing T. H. Piser) and Stotz.

The purpose of the meeting was to discuss the progress being made by the various sections' committees and to give an opportunity for exchange of ideas.

Mr. Gould advanced a suggestion that companies should not only conduct their

sales of appliances over the twelve months' period but should emphasize in the mind of the purchaser the economy and convenience of using those appliances all the year round. Such a plan has real merit and it will be to the advantage of gas companies to adopt such a thought as their selling policy.

Mr. Vincent presented the completed report of his committee on the subject of Work Schedules and in doing so stated that the plan was in operation in his own company and was producing gratifying results.

It was decided to print and distribute the report as soon as possible and also request a selected list of about ten companies to put the committee's plan in trial operation for at least a year.

As the result of a questionnaire recently sent to member companies, 150 replies have been received by Mr. Gould for his committee on Filling in the Valleys in Gas and Appliance Sales. Each of these returns has been charted and analyzed by the chairman and each company so reporting will be communicated with by members of the committee in an endeavor to suggest ways and means for their filling in the valleys which appear on their respective charts.

A report from the Gas Lighting Committee announced a plan for holding conferences in different cities attended by men who are interested in developing the gas lighting business. The first of such a series of meetings was recently held in

Boston, attended by fifty gas men and the exchange of experiences and sales plans brought out at that time will be of great assistance to the committee in their work.

A recommendation was made that the Exhibition Committee consider the suggestion that at the annual exhibit a display of modern gas lighting units and fixtures be prepared for its stimulating influence upon gas men.

Mr. Eves recommended that the Association have at its headquarters a Domestic Science Department with a competent domestic science expert in charge and cited as an example of what such a department could accomplish, the excellent results already secured by the New Haven Gas Light Company, described in another part of this issue. The matter was referred to the Publicity and Commercial Sections, with a request that they prepare a recommendation for presentation to the Executive Board.

## Gas Lighting

At the first meeting of the Gas Lighting Committee, held in Boston recently, it was recognized that continuous service to our company members throughout the year, particularly in promoting the sale and maintenance of gas lighting equipment, was a matter of prime importance.

In order to provide the committee with information and to establish a sound basis on which to work, a short questionnaire will be sent to the gas company members, asking for information on successful lighting campaigns or special sales efforts conducted during the past year, data regarding street lighting, maintenance, increase of sales of residence and commercial lighting, etc. Most important of all, company members will, later on, be asked to provide the com-

mittee with fairly complete data as to their own successful sales and sales policies which can, in turn, be used to advantage by other company members.

It was decided at this meeting to hold a series of local conferences in different cities. The first of such conferences was held in Boston on April 9, with an attendance of about fifty (50) gas men, interested in gas lighting, from all the states in New England. It was very apparent that the main thought of the conference was that there was practically no difficulty in pushing gas lighting, provided that it was done in what has now been proved to be the standard way, namely—the payment of adequate salaries and commissions to men to obtain the sale of gas lighting units (for it is



necessary to modernize the gas lighting installations now on the premises of the consumers) and then to take care of these installations.

Those who attended the conference were very enthusiastic; many helpful suggestions were offered, and new and various plans explained. The results of the conference were most encouraging and steps will be taken by the committee to inaugurate similar conferences in other sections of the country.

An interesting and helpful article on gas lighting is that by Charles A. Pepper, entitled "Obtaining and Holding Commercial Gas Lighting From the Company's Point of View" (page 261, *American Gas Engineering Journal*, April 3, 1920), which explains their plan of campaign for selling arcs and their maintenance in the city of Sheboygan.

The committee has received the following communication from one of its members, Mr. Philmer Eves, of the New Haven Gas Light Company:

ARCHITECTS' CLUB IN NEW  
HAVEN (CONNECTICUT)  
ILLUMINATED BY  
MODERN GAS  
LIGHT.

In September, 1919, the Architectural Club of New Haven accepted the invita-

tion of the New Haven Gas Light Company to make the Company's assembly room the Club's headquarters and the Club held its meetings there. In March last, the Club decided to have a club room in which the members could meet at any time for social and business intercourse. A suitable place was found on the third floor of a large business building in the principal street of New Haven. This building is equipped with electric wiring and with piping for gas. The club room is about 29½ feet by 18½ feet. The New Haven Gas Light Company secured the exclusive lighting of this club room with gas. Two handsome semi-indirect fixtures 20 inches in diameter, old brass finish, containing 6 mantles were installed and hung 42 inches from the ceiling. The ceiling is white, and the walls are covered with panelled burlap of a light tan color. Outlets are provided for gas bracket lights. The light from the semi-indirect fixtures, however, is so evenly distributed and satisfactory that, at present, side wall lights are considered unnecessary. This installation must be stimulating to any who are not strenuously advocating and securing gas lighting business, not only through the usual channels but with the influence and support of architects.

The following argument, as presented to the Committee by one of its members, Mr. Conroy, is apparently unassailable. If it has a weak point the Gas Lighting Committee would like to be shown.

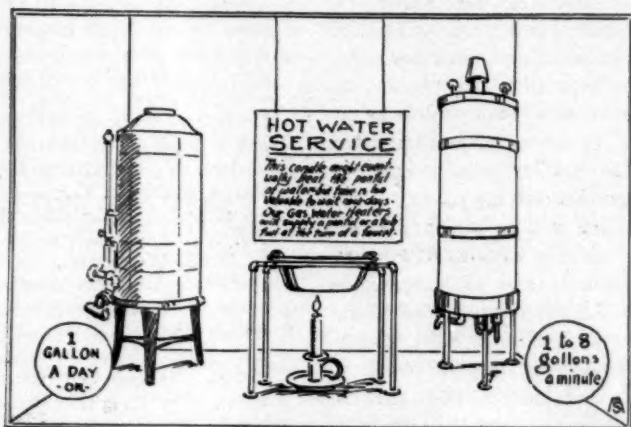
(Continued on page 392)

### Stage-Lighting

(From an article "Stage Lighting—New and Old," in the *Saturday Evening Post* of March 20, 1920, contributed by David Belasco.)

"When, between 1870 and 1880, the use of gas had been pretty well developed and perfected we thought that we had revolutionized stage lighting—as indeed we had. And in passing I would record my testimony that some lighting effects were obtained with gas that have not yet been surpassed by any other medium—though certainly they will be—and which were immensely superior to any obtained by the early applications of electricity. It is a significant fact that Henry Irving after installing a complete electrical stage-lighting system in the London Lyceum, in 1891—at the request of Augustin Daly, who had rented that theater for a season—tore it all out and restored the gas system, reenforced by limes, and retained it until he gave up the management of that house, July 19, 1902."

## Window Display Suggestions for June

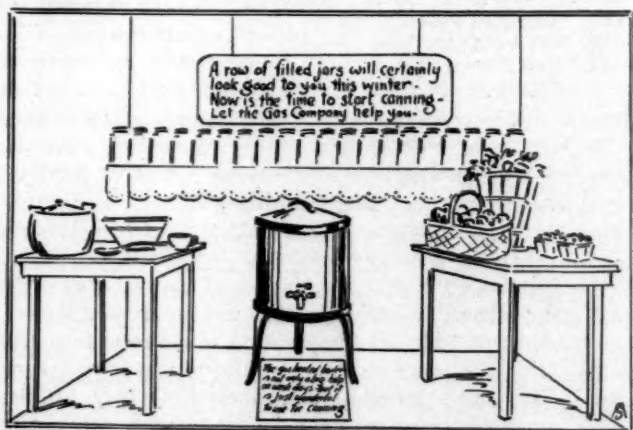


Display for Third Week in June

15a

This arrangement illustrates the two extremes in hot water service.

The pan is supported on a pipe frame and the candle should be kept burning for purpose of creating curiosity.

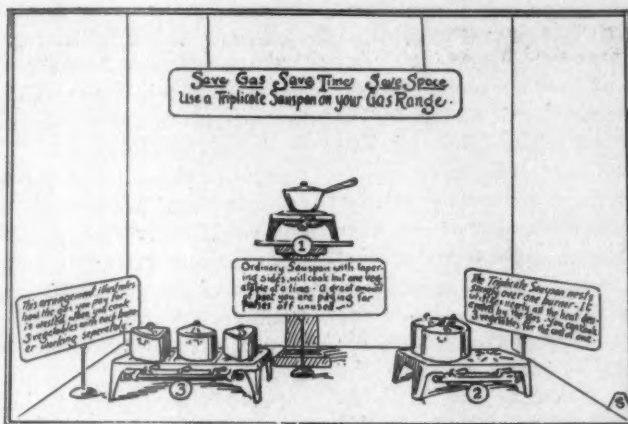


Display for Fourth Week in June

15b

Instead of devoting the entire space for canning exhibits to the range, the various other appliances might be featured as above specimen.

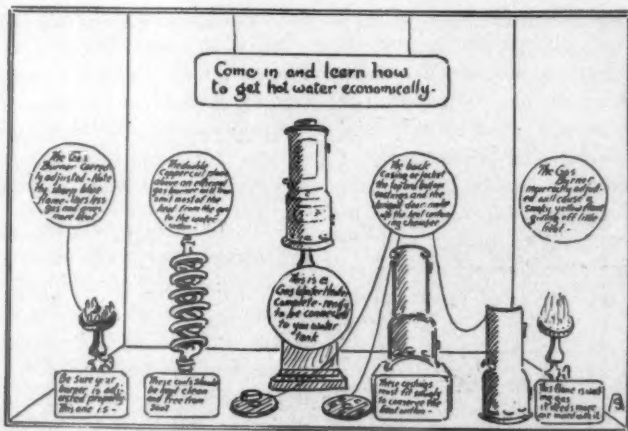
If the space in your window permits include gas range as part of the display.



### Display for First Week in July

15c

To illustrate the use of the Triplicate Saucepan plainly a 1-burner, a 2-burner, and a 3-burner Hot Plate is suggested. (It might be well to use a card of explanation in the window stating that Hot Plates are not recommended for cooking, but are used here for purposes of explaining the utility of the saucepan only.



### Display for Second Week in July

15d

A complete heater in center with one taken entirely apart and each part shown constitute this set up.

An extra burner may be added and the burners shown on both sides could be piped for gas and burning—one should be adjusted properly, the other improperly.

### Performance Standards Committee Meets with Representatives of Bureau of Mines

On the 8th of April a meeting was held in Pittsburgh on the initiative of the Bureau of Mines. The Pittsburgh Experiment Station of this Bureau is undertaking to determine by test the relative efficiency of various makes of gas, electric and oil stoves, and before deciding on methods of test asked the A. G. A. Performance Standards Committee for advice. As a result of the meeting, the Bureau decided to adhere closely to the principles established by the A. G. A. Committee, and will co-operate with this Committee in the establishment of suitable test standards for this class of equipment. The officers of the Bureau were approached by the Committee members, with reference to determination for high temperature work of the relative value of different kinds of gases commercially available. An attempt will be made to secure for the Bureau an appropriation covering the expenses of making the necessary tests. The importance of such tests was keenly appreciated by the officers of the Bureau, not only from the point of view of the gas companies, but also from the point of view of industrial concerns that are facing the necessity of changing from oil or natural gas to some other source of heat for operation of their furnaces. The matter will be brought to the attention of other associations that are interested in this problem.

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$$12 + 12 = 100$$

Since the last annual convention we have continually advocated the adoption, by all our member companies, of a definite twelve months' sales schedule, a plan recommended by the 1919 Sales Campaign Committee and approved by the Commercial Section.

Copies of this report have been sent

to every gas company member and are available now for the asking.

There are many valuable suggestions contained in this report which should be in the hands of every sales manager and receive his careful study.

The title above may at first seem rather at variance with arithmetic calculations and yet it really conveys a message of importance to every gas company — for the sale of gas appliances during twelve months of the year and an all-year use of these appliances will mean 100% results to your company.

Make it your policy to impress upon the purchasers of appliances that it is to their interest and benefit to use their appliances twelve months of the year.

If you will make a comparison of your appliance sales and gas sales for the same period, we believe you will be astounded by the fact that gas sales show a falling off in direct proportion to the let down of sales activity. The psychology of the thing is that your consumers' interest and inclination are maintained as they see evidence of activity on your part and when your sales effort slows up, the effect on the consumer is to cease to a certain extent the use of gas.

Impress upon the minds of our consumers that the all-year burning of gas is economical and advantageous to them.

—○—○—  
(Continued from page 355)

prevention; and lastly, to specialized effort in the field of accident prevention.

Our specialized effort consists of periodical accident hazard inspections; first aid and safety talks to shop employees, illustrated by lantern slides and motion pictures; and the distribution of safety literature. We have hundreds of slides, which are used to illustrate talks on various phases of industrial accident prevention.

*Mr. Douglas' address was concluded by the motion picture film, "How to Avoid Accidents."*



## MANUFACTURERS SECTION

W. GRIFFIN GRIBBEL, Chairman

GEORGE S. BARROWS, Vice-Chairman

W. W. BARNES, Secretary

### MANAGING COMMITTEE — 1920

#### At Large

BARNES, W. W., New York, N. Y.  
BARROWS, GEORGE S., Providence, R. I.  
BRILL, A. P., Pittsburgh, Pa.  
BRUCE, HOWARD, Baltimore, Md.  
COLLINS, D. J., Philadelphia, Pa.  
CONROY, J. F., New York, N. Y.  
CRANE, WM. M., New York, N. Y.  
DEHART, J. S., Newark, N. J.  
GRIBBEL, W. GRIFFIN, Philadelphia, Pa.  
HUTCHINSON, W. P., Bridgeport, Conn.  
LOHMEYER, H. B., New York, N. Y.  
MASON, SIDNEY, Gloucester, N. J.  
NORTON, HARRY A., Boston, Mass.  
PEFFLY, IRVING W., New York, N. Y.  
REEB, RICHARD, Kalamazoo, Mich.  
ROBERTS, EARL W., Detroit, Mich.

ROPER, GEO. D., Rockford, Ill.  
SCHALL, H. D., Detroit, Mich.  
STITES, TOWNSEND, Gloucester, N. J.  
WICKHAM, LEIGH, St. Louis, Mo.

#### Representing Affiliated Societies

BABCOCK, C. B., San Francisco, Cal. (Pacific Coast)  
BARTLETT, C. E., Philadelphia, Pa. (Pennsylvania)  
CHAPIN, C. H. B., New York, (Empire State)  
ECCLES, GEO. W., Waltham, Mass. (N. E. Gas Eng.)  
GIBSON, W. E., Toronto, Can. (Canadian)  
HOWSMON, G. M., Atlanta, Ga. (Southern)  
LONG, H. J., New Brunswick, N. J. (New Jersey)  
McCULLOUGH, CHAS., Milwaukee, Wis. (Wisconsin)  
MILLER, THOS. D., Detroit, Mich. (Illinois)  
SEIDENGLANZ, C. H., Dallas, Texas, (So. Central)  
SCHALL, H. D., Detroit, Mich. (Michigan)  
WARREN, W. M., St. Louis, Mo. (Iowa Dist.)  
WESTON, J. A., Lansing, Mich. (Indiana)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Membership**—WM. M. CRANE, New York, N. Y.  
**Apparatus Makers**—D. J. COLLINS, Philadelphia, Pa.  
**Nomination**—W. M. CRANE, New York, N. Y.  
**Exhibition**—W. GRIFFIN GRIBBEL, Philadelphia, Pa.  
**Illustrated Lectures**—GEORGE S. BARROWS, Chairman  
**Division of Meter Manufacturers**—DONALD McDONALD, Chairman, W. P. HUTCHINSON, Vice-Chairman  
**Division of Gas Range Manufacturers**—WM. M. CRANE, Chairman, I. W. PEFFLY, Vice-Chairman  
**Division of Water Heater Manufacturers**—H. J. LONG, Chairman  
**Division of Office Labor Saving Devices Manufacturers**—H. B. LOHMEYER, Chairman, E. J. FERRIS, Vice-Chairman

**Division of Heating Appliance Manufacturers**—GEO. S. BARROWS, Chairman  
**Division of Industrial Appliance Manufacturers**—S. TULLY WILLSON, Chairman  
**Division of Lighting Appliance Manufacturers**—J. P. CONROY, Temporary Chairman  
**Division of Apparatus & Works Manufacturers**—J. S. DEHART, JR., Temporary Chairman  
**Division of Supply Manufacturers**—R. MUELLER, Temporary Chairman  
**Division of Accessories Manufacturers**—B. RYAN, Temporary Chairman

"Success waits upon ability and loyalty. Let's go!"—Geo. B. Cortelyou

Company Member



The Seal of

#### STANDARD PRODUCT AND ASSOCIATION SUPPORT

All company members, Manufacturers Section, are urged to use the above emblem on all stationery, catalogues and literature as company members of this Association.

#### **Managing Committee Monthly Meeting**

The only business of importance coming before the Managing Committee at the April meeting was the adoption of rules pertaining to the Annual Exhibition to be held in conjunction with the Second Annual Convention of the Association at the Hotel Pennsylvania, New York City, November 15 to 20, 1920.

The prospectus with application for space is now in the mails and it is predicted that the Exhibition will be closed in its entirety at an early date this year. All firms who contemplate exhibiting at this Convention should make early application in order that the Exhibition Committee can do justice to them in the matter of allotting exhibition space.

### Committee from the Division of Gas Range Manufacturers

The committee from the Division of Gas Range Manufacturers, consisting of Messrs. Crane, Schall, Hunter and Kahn which was appointed to attend the meeting of the Natural Gas Conservation Committee held in Washington, March 26, reports that the committee was cordially received and invited to express its views as to the best method of conserving gas by the use of more efficient appliances. The question of open-top vs closed-top was thoroughly dis-

cussed but the committee was not unanimous in its views on this question. All agreed, however, that no legislation of any kind should be attempted in favor of or against either construction. The paramount issue was that all appliances should be so constructed as to be economical in their use with a view of giving the highest efficiency possible. The Conservation Committee, Van H. Manning, Chairman, has reached no decision up to this time, but a full report as to the final action of this committee is looked for in the near future.

### Group Publicity

We are all concerned in enlarging the market for gas and thereby increasing the market for equipment and appliances we have to offer. This market enlargement which will carry with it increased business for all of us can be helped in our publicity in various ways.

F. A. LEMKE

Our initial step in Group Publicity was a feature at the "Own Your Home" Exposition held at the Grand Central Palace, New York City, May 1 to 8. Thirty-seven manufacturers, all Company members of the Association, whose products had to do with home economics joined issues in having gas prominently brought to the attention of home builders at this Exposition.

A booth was secured on the main floor of the exhibition hall and was attended by a representative from Head-

quarters Staff during the entire week, who distributed the literature of our Manufacturer Company members to those seeking information on gas burning appliances.

The balopticon machine, the latest stereopticon device, automatically operated, was used to show views of model gas installations. These views, interspersed with messages pertinent to the gas industry, attracted considerable attention. The messages included in this plan of publicity are as follows:

If interested in GAS or APPLIANCES inquire of attendant

AMERICAN GAS ASSOCIATION representing a membership of 371 gas companies doing annually 80% of the artificial gas business of the United States. An organization whose membership stands for PUBLIC SERVICE



To promote and develop the GAS INDUSTRY and to co-ordinate its activities to the end that it may serve to the fullest possible extent the best interest of the public

Facts concerning the gas industry. One thousand twenty-four gas companies in the United States representing an investment of over \$4,000,000,000—serves 45,000,000 people in over 4600 cities and towns

Facts concerning the gas industry. It requires 10,000,000 tons of coal and 28,000,000 barrels of oil to manufacture the 300,000,000 cubic feet of gas served annually to the American people

#### Gas service in the home

No home is complete unless adequately piped for gas service  
It will be most economical to do this while the house is being built

Your gas company will assist you in this MATTER

The Exposition was very well attended during the week, a great many visitors expressing the opinion that many appliances which were previously unknown to

them had been intelligently presented and their visit to the Exposition was one of profit.

### Watch Our Membership Grow

#### Honor Roll

GEORGE W. PARKER,	—	10 Manufacturer Company Members
CLARENCE H. FRENCH,	—	1 Manufacturer Company Member
RICHARD REES,	—	1 Manufacturer Company Member
H. A. NORTON,	—	1 Manufacturer Company Member
J. B. KLUMPP,	—	1 Manufacturer Company Member
HEADQUARTERS,	—	7 Manufacturer Company Members

Total Manufacture Company membership to date 193 members.

Remember our goal 300 members.

#### Joint Committee on Trade Acceptances

The Joint Committee (Manufacturers and Accounting Sections) on Trade Acceptances submitted the following recommendation on Trade Acceptance, which recommendation was approved by the Executive Board at its meeting on February 25, 1920.

In the first place, the Committee considers Trade Acceptance settlements as a sound basis of relationship between the purchaser and the seller, and that there should be a general desire to take advantage of this form of settlement, thereby assisting in soundly financing purchases and at the same time soundly assisting the manufacturer in financing his costs of production.

While there has been a general enlargement in the amount of this form of credit it is evident that only a comparative few appreciate its usefulness to industry as a whole. Foreign countries have used the system to a very great extent with advantageous results. In the expansion of credits which are most prominently before us at this time, the situation would be a much sounder one were a larger portion of this expansion represented by credits extended on commodities directly and in definite maturity form.

Because it is different, new and not thoroughly understood many companies refrain from ready acceptance to partici-

pate, either as purchasers or sellers of the commodity, in this form of credit. The committee therefore feels that its first step should be to get the endorsement of the Association on this form of credit before any committee can effectively enlarge its sphere of usefulness.

Gas companies, which do not take discounts in settlement of bills, regardless of the reason therefor, should consider what is the best form of the relationship which their financial statement will show; other companies, who do take discounts, would probably consider the trade acceptance method of settlement if no penalty beyond a commensurate interest charge were made against the net discounted amount of their purchase and if they appreciated that this means of settlement was not handicapping the manufacturers and in reality putting the entire industry in a better position by creating working capital on the soundest possible basis through the banking channels which are provided for that purpose. Manufacturers likewise in some cases have discriminated against acceptance settlements in allowing discounts as against cash settlements. This also curtails the possible use of this sound means of credit in the enlargement of which the manufacturers should participate for the best protection of the financial condition of the industries to whom their commodities are being sold.

(Continued on page 386)



## TECHNICAL SECTION

L. R. DUTTON, Chairman

H. W. HARTMAN, Secretary

W. S. BLAUVELT, Vice-Chairman

### MANAGING COMMITTEE — 1920

#### At Large

BLAUVELT, W. S., Terre Haute, Ind.  
 CASTOR, W. A., Philadelphia, Pa.  
 CHUBB, C. N., Davenport, Iowa.  
 COLLINS, D. J., (Mfr.) Philadelphia, Pa.  
 CONGDON, R. C., Atlanta, Ga.  
 DUTTON, L. R., Jenkintown, Pa.  
 HARNSHAW, E. H., Newark, N. J.  
 FIELDNER, A. C., Pittsburgh, Pa.  
 FORSTALL, WALTON, Philadelphia, Pa.  
 FULWEILER, W. H., Philadelphia, Pa.  
 HAFTENKAMP, J. P., Rochester, N. Y.  
 HAZELTINE, L. A., New York, N. Y.  
 HARPER, R. B., Chicago, Ill.  
 MACARTHUR, DONALD, Jersey City, N. J.  
 MACBETH, A. B., Los Angeles, Cal.  
 MACBETH, G. T., Mt. Vernon, N. Y.  
 NORMAN, O. E., Chicago, Ill.  
 NORTON, H. A., (Mfr.) Boston, Mass.  
 OLIPHANT, B. C., Buffalo, N. Y.  
 PHILLIPS, A. L., Washington, D. C.  
 STONE, C. H., Rochester, N. Y.  
 UHLIG, E. C., Brooklyn, N. Y.  
 WEBER, F. C., New York, N. Y.  
 WILLIEN, L. J., Boston, Mass.

#### Representing Affiliated Societies

BROWN, J. A., Jackson, Mich. (Michigan)  
 CHAPIN, C. H. B., New York, N. Y. (Empire State  
 G. & E.)  
 CHUBB, C. N., Davenport, Ia. (Iowa)  
 CORNISH, R. C., Philadelphia, Pa. (Pennsylvania)  
 HART, J. G., Waukegan, Ill. (Illinois)  
 HUMPHREYS, J. J., Montreal, Canada. (Canada)  
 JONES, E. C., San Francisco, Cal. (Pacific Coast)  
 JONES, JACOB B., Bridgeton, N. J. (New Jersey)  
 LYONS, B. F., Beloit, Wisc. (Wisconsin)  
 PAIGE, C. E., Worcester, Mass. (N. E. Gas. Eng.)  
 SEDBERRY, W. H., Marshall, Tex. (South Central)

### CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

**Carbonization**—J. P. HAFTENKAMP, Rochester, N. Y.  
**Cast Iron Pipe Standards**—WALTON FORSTALL, Philadelphia, Pa.  
**Chemical**—E. C. UHLIG, Brooklyn, N. Y.  
**Vice-Chairman**, R. B. HARPER, Chicago, Ill.  
**Deposits in Meters, Services, etc.** (Sub)—O. A. MORHOUS, Astoria, N. Y.  
**Purification**—C. H. STONE, Rochester, N. Y.  
**Consumers Meters**—W. A. CASTOR, Philadelphia, Pa.  
**Vice-Chairman**, GEO. WHEELER, Denver, Colo.  
**Re-Design of Distribution Systems**—F. C. WEBER, New York, N. Y.

**Disposal of Waste from Gas Plants**—L. J. WILLIEN, Boston, Mass.  
**Electrolysis**—L. A. HAZELTINE, New York, N. Y.  
**Vice-Chairman**, ROBT. C. NEWBURY, Denver, Colo.  
**Gas Works Auxiliaries**—C. N. CHUBB, Davenport, Ia.  
**Vice-Chairman**, R. A. CARTER, Jr., New York, N. Y.  
**Nomenclature**—O. E. NORMAN, Chicago, Ill.  
**Refractory Materials**—W. H. FULWEILER, Philadelphia, Pa.

## Progress of Technical Committees

IN the May issue a brief account of the progress made by the Carbonization, Disposal of Waste, Electrolysis and Nomenclature Committees was recorded.

Progress of the remaining technical committees as reported by the Chairman at the Mid-West Conference at Chicago is given below. The work planned in several cases will require the continuance of the committees next year, but the Chairmen will have reports of the work accomplished during the current year ready for approval and presentation at the 1920 Convention.

#### Purification Committee

At a meeting of the Committee held at Association Headquarters, March 23, a complete reassignment of the research work was made among the members.

A co-operative agreement has been reached with Mr. W. A. Dunkley of the Illinois Geological Survey, whereby he will take up the study of hydration with the Committee's co-operation.

At Mr. Dunkley's suggestion it was decided to refer to the Chemical Committee the question of developing a standard test by which the value of an oxide might

be determined either on a laboratory or semi-practical scale. Many of the larger companies have apparatus consisting of miniature purifiers connected with meters through which gas is passed at a certain rate, and the value of the oxide judged by the volume of gas passed before  $H_2S$  passes by the purifiers. Such a test would seem valuable if specifications could be devised covering dimensions and design of apparatus, rate of gas flow, tests to be applied, preparation of test batches, testing procedure, standard performance, etc.

All figures on alkalinity prepared by the Committee will be given as percentage by weight (figured as calcium carbonate), the percentage to be based on the entire mass of the mixed oxide.

#### Consumers Meters Committee

An all-day meeting of the Committee was held March 19 in Chicago, at which a prepared report on meter testing was carefully discussed and adopted, with the exception of a few minor changes and additions.

The Committee authorized Mr. Gribel to submit that portion of the report dealing with meter construction to the Meter-Makers' Division of the Manufacturers' Section for their approval. Matters in the report concerning the destructive action of the gas and condensation in the meters was referred to the Sub-Committee of the Chemical Committee appointed to investigate this subject.

After certain minor investigations have been completed the Committee's report will be ready for the approval of the Managing Committee.

#### Gas Works Auxiliaries Committee

Reports on the following subjects have been submitted by members of the Committee:

Station Metering Equipment.....J. M. Spitzglass  
Boosters and Compressors.....E. S. Jones  
Laboratory Equipment.....J. S. Kennedy  
Steam Plant Apparatus.....R. L. Greene  
Remote Control Starting Devices.....F. L. Weisser  
Holder Heating.....J. J. Humphreys  
Water Gas Blowers.....W. M. Russell

Progress reports on the following subjects were also submitted:

Water Gas Blowers.....F. J. Ikema  
Coal Handling Apparatus.....H. L. Underhill  
Tar Extractors.....J. R. Wohrley

These articles after being edited will be submitted to the Managing Committee for acceptance.

In the Committee's work the question arose of what might be included in the term gas works auxiliary. To define this field the Committee are preparing three charts which will cover all equipment and apparatus used in coal gas, water gas and oil gas plants.

#### Refractory Materials Committee

The Committee has decided to make tests of carbonfrax, chromite, fireclay, magnesite, mica schist, and zirconite.

Arrangements have been made to have these materials tried out in actual practice by members located in different parts of the country so that the experiments will embrace different operating conditions, varying grades of coal, etc. These tests will be supplemented by laboratory determinations in an attempt to co-ordinate the physical and chemical characteristics of the material with the practical working results.

Due to the period required for practical tests a complete report cannot be submitted this year but the Committee will present for approval July 1 an outline of the materials under test and preliminary data secured on chemical and physical characteristics.

## Water Gas Timer

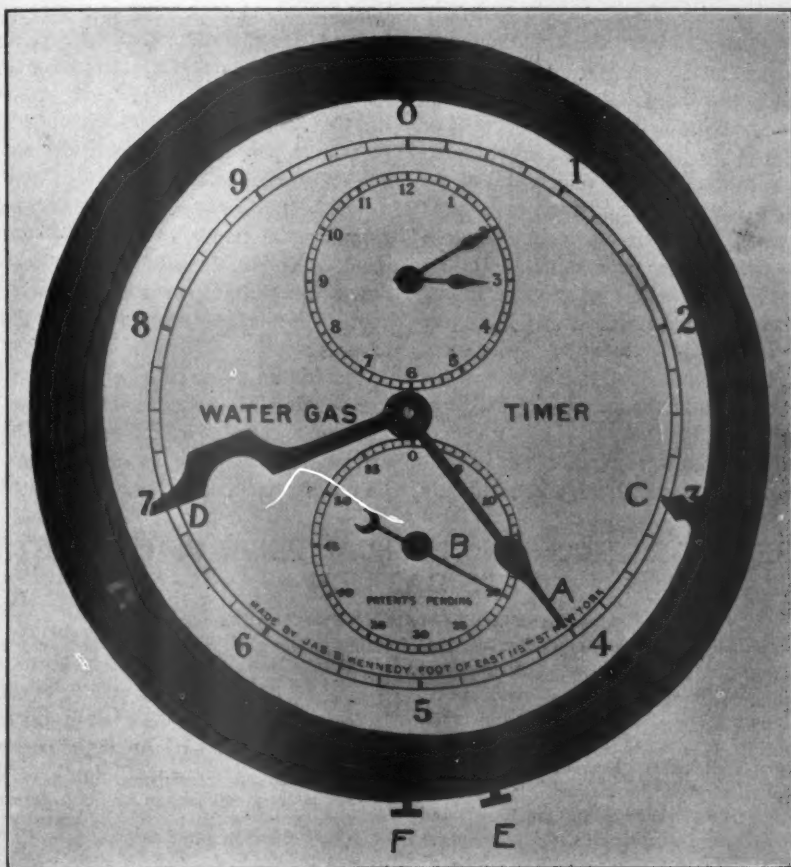
By JAMES S. KENNEDY, Standard Gas Light Co., New York City

THE instrument shown in the illustration has been designed to facilitate the accurate timing of the blowing and running periods in the operation of a water gas set.

Referring to the figure, the large dial is divided into 10 minutes, each minute being sub-divided into four periods of  $\frac{1}{4}$  minute each. The large time hand A moves over this dial in  $\frac{1}{4}$  minute jumps. The smaller dial within the upper portion

of the large dial indicates the time of day by means of the hour and minute hands. The lower dial indicates seconds by means of a seconds hand B.

The adjustable target C can be set by hand in any position by moving the face ring to which it is attached. This target moves outside the periphery of the large dial and is used to indicate the end of the blowing period. Similarly the adjustable pointer D which is set by means of a



thumb screw in the side of the case in any position between 4 and 10 minutes indicates the end of the run or gas making cycle. As shown in the illustration the target and pointer are set for a 3 minute blow and 4 minute run making a total cycle of 7 minutes.

Assuming the blowing period to commence when the timer hand A is at zero, the time hand "paces" or times the gas maker's operation of the set. When the hand reaches the target C, he changes from blow to run. When it reaches the pointer D it instantly resets to zero and at this moment the gas maker changes from run to blow. The hand A then proceeds to time the next cycle, each time resetting to zero upon reaching the pointer D.

When the timer hand reaches the  $\frac{1}{4}$  minute position before either target C or pointer D the gas maker can direct his attention to the seconds hand B and at the moment when this hand reaches its next quarter (0, 15, 30 or 45 seconds), he can make the change from blow to run or vice versa. This permits of exact timing as when the hand A makes any  $\frac{1}{4}$  minute jump it is always exactly at the moment when the seconds hand B is at one of the four quarters of the minute (0, 15, 30 or 45 seconds).

Any cycle up to 10 minutes can be thus accurately timed much more conveniently

than with the ordinary clock. Odd cycles with  $\frac{1}{4}$  minute sub-divisions, such as  $2\frac{1}{4}$  minutes blow  $3\frac{1}{2}$  minutes run, can be timed as easily as cycles with even minute sub-divisions.

The pointer D can be set to release or reset the timer hand at any one of the twenty-four  $\frac{1}{4}$  minute positions from 4 to 10 minutes. There are 20 release cams in the movement and the position of pointer D determines which one is in operative position to reset the timer hand.

The button E is used to start and stop the time movement to permit its being set in synchronism with a watch or other time piece. If each timer in a generator house is so synchronized at the beginning of each eight hour shift all the timers will keep in fairly close synchronism throughout the 24 hours, which is important in properly staggering the blows and runs on different sets.

The button F stops the hand A without stopping the hands of the time movement. This is done when a set is shut down for cleaning or repairs and prevents the needless motion of the timer hand A.

The button F can also be used to shift the position of the timer hand A as in starting a cycle or resetting its position after a fuel charging or other interruption of the sequence of regular cycles.

## RECENT ARTICLES IN CHEMICAL PRESS OF INTEREST TO GAS MEN

Contributed by Sub-Committee on Abstracts\* of the Chemical Committee

**AUTOMATIC METHODS OF GAS ANALYSES, DEPENDENT UPON THERMAL CONDUCTIVITY.** By E. R. Weaver, P. E. Palmer, H. W. Frantz, P. G. Ledig and S. F. Pickering, *Journal of Ind. & Eng. Chem.*, Vol 12, 359 (April, 1920). Describes the principle and history of the method, electrical arrangements, representing analyses, and construction of apparatus. (E. J. Murphy.)

**NEW FORMS OF COMBUSTION APPARATUS FOR USE IN GAS ANALYSES.** By E. R. Weaver and P. G. Ledig, *Journal of Ind. & Eng. Chem.*, Vol. 12, 368 (April, 1920). This paper describes two new forms of combustion apparatus for use in gas analyses. One is an improved form of the Dennis and Hopkins combustion pipette. The second is a combustion capillary of small size, containing an electrically heated wire. (E. J. Murphy.)

\* Abstractors' names appear in brackets following each item.



## The Gas Industry Responds

It took some central and potent force to bring together the leading executives of gas companies from all parts of the country, who met in New York on May 26 to consider the serious condition now confronting the gas companies of the United States and determine upon a plan of concerted action to bring about a remedy.

The American Gas Association was responsible for one of the most important steps ever taken by the industry collectively to protect its interests.

The conference on May 26 had its inception when, at a recent meeting of the Executive Board of the A. G. A., a plan was submitted and approved immediately, for bringing to the attention of the public in no uncertain manner the serious plight of gas companies and their need for relief to enable them to continue giving adequate service.

The following call was immediately sent out to the managing executive of every gas company in the United States.

### NOTICE OF IMPORTANT CONFERENCE OF GAS COMPANY EXECUTIVES.

May 1, 1920.

*To All Gas Company Members and Executives of Non-Member Companies:*

At a meeting of the Executive Board of the American Gas Association held in New York on April 28, a discussion of the serious condition which confronts many of the gas companies in the matter of inadequate rates and the unprecedented prices which they are being forced to pay for essential gas-making materials led to a resolution, requesting the President to call a meeting of Executives of gas companies and representatives of gas company members of the

Association, to be held in New York City on May 26, 1920, at 10.30 A. M., in the small Ball Room on the Mezzanine floor of the Hotel Pennsylvania.

At that time a special committee, which has already been appointed, will present a program, the purpose of which is intended to acquaint the consuming public with the facts, to make clear the essential character of gas service and to bring about a widespread recognition of the necessity for immediate relief to gas companies, which unless granted will inevitably lead to a condition of grave concern to every community.

You are urged to have present a representative authorized to act for your company in this important matter. It is believed that by prompt and concerted action of the kind proposed much may be accomplished to bring about an improvement in the conditions which now so seriously menace the gas industry."

The A. G. A. has its feet squarely on the ground and is performing a useful and important function for the gas industry; however, all the companies which are receiving direct benefit from the Association's representation of their interests are not assuming a fair share of their obligation but are allowing the burden to rest upon the shoulders of our member companies—obviously this is not a square deal and is a condition which every non-member gas company should remedy at once.

The industry must be a unit in meeting its vital problems and the American Gas Association is recognized by the 380 gas companies who represent 80 per cent. of the artificial gas business in the United States as their national representative.

Is your company doing its share?

## New Members Enrolled in the American Gas Association, Inc.

April 10, — May 8, 1920.

### GAS COMPANY MEMBERS

The Middletown Gas Light Co.....	E. C. Weston, Middletown, Conn.
The Connecticut Light & Power Co.....	C. L. Campbell, Waterbury, Conn.
Home Gas Co. ....	D. J. Eisenhower, Abilene, Kans.
Emporia Gas Co. ....	C. H. Fellows, Emporia, Kans.
Junction City Gas Co.....	J. T. Coffey, Junction City, Kans.
Newburyport Gas & Electric Co.....	J. Lee Potter, Newburyport, Mass.
Asheville Power & Light Co.....	H. W. Plummer, Asheville, N. C.
Tide Water Power Co.....	Raymond Hunt, Wilmington, N. C.
Berwick Gas Co. ....	Ellison Elmer, Berwick, Pa.
Platteville Gas Co. ....	Wm. C. Butterworth, Platteville, Wis.

### MANUFACTURERS

Royal Art Glass Co.....	B. Brafman, New York, N. Y.
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### Active Members

Delaware (2)	Massachusetts (18)
Georgia (1)	Nebraska (1)
Iowa (1)	New Jersey (2)
Maine (1)	New York (3)
Maryland (92)	Ohio (8)

(Continued from page 380)

Many banks take varying viewpoints, in many cases adverse to the furthering of this principle of trade acceptance settlements. Their co-operation is essential, and manufacturers and purchasers alike must co-operate in the conviction of their bankers as to the value of an increasing volume of a trade acceptance settlement for the best result of industry as a whole. The three parties must in all cases recognize the fundamental soundness and merit of the trade acceptance principle, and education is required to accomplish what is necessary and desirable in this regard.

It is felt by the committee that the many problems, which would be brought

up, can best be solved in any industry by first having the association representing that industry endorse the soundness of the principle urging its adoption by the various members of the industry. With this endorsement disseminated to the members of the association it is then felt that an educational campaign would be well worth while to give the gas industry the benefit of the credit possible from this source.

We recommend this endorsement by the Executive Committee of the Association at this time so that further steps can be taken without the loss of time elapsing before the next annual meeting of the Association.

# State and Municipal Standards for Gas Quality

Compiled by Bureau of Standards, Washington, D. C.

The following tabulation gives for each state the status of requirements regarding heating value of gas supplied by public utility companies as in force to date according to Bureau records.

State	Date Effective	B. t. u. value specified	Character of Specification	Specified point of Test	Notes
Alabama	None				
Arizona	5/1/15	600	Mo. aver.	1 mile radius from distribution center	
		550	Min.		
Arkansas	None				
California	9/1/19	570	Mo. aver.	1 mile radius from distribution center	
Colorado	1/1/17	575	Mo. aver.	1 mile from mfg. plant	
		525	Min.		
Connecticut	10/1/18	528	Min.	1½ miles from mfg. plant	(1)
Delaware	None				
Dist. of Columbia	9/1/14	600	Mo. aver.	Commission testing station	
		550	Daily aver.		
Florida	None				
Georgia	No state-wide requirements; see cities list				
Idaho	None				
Illinois	2/4/19	565	Mo. aver.	1 mile from plant and in place where consumed	(2)
		530	Min.		
Indiana	April, 1920	570	Mo. aver.	1 mile radius from distribution center	(3)
		600	Max.		
		540	Min.		
Iowa	None				
Kansas	None for manufactured gas—800 Min. for natural gas				
Kentucky	None				
Louisiana	None				
Maine	None				
Maryland	July 1, 1915	600	Mo. aver.	1 mile from mfg. plant	
		550			
Massachusetts	Jan. 1, 1918	528	Min.	Gas supplied to the customers not less than ¼ mile from mfg. plant	(4)
Michigan	None				
Minnesota	None				
Mississippi	None				
Missouri	Oct. 1, 1915	570	Mo. aver.	1 mile from mfg. plant	(5)
		520	Min.		
Montana	Apr. 30, 1914	475	Mo. aver.	1 mile radius from distribution center	(6)
		450	Min.		
Nebraska	None				
Nevada	June 11	550	Mo. aver.	1 mile radius from distribution center	
		500	Min.		
New Hamp.	Apr. 1, 1917	565	Mo. aver.	1 mile radius from mfg. plant	(7)
		550	Min.		
New Jersey	Nov. 15, 1911	600	Mo. aver.	1 mile from dist. center	(8)
		550	Min.		
New Mexico	None				
New York—					
1st Dist.	Oct. 13, 1917	650	Mo. aver.	½" air line from mfg. or dist. station	(9)
		615	3 day aver.		
2nd Dist.	Jan. 1, 1917	585	Mo. aver.	2 mile radius from mfg. plant	
		555	(approx.) 3 day aver.		
North Carolina	None				
North Dakota	None				
Ohio	None				
Oklahoma	None				

Note.—It will be appreciated if notice of any error or omission is forwarded to Association Headquarters.

Oregon	July 1, 1914	570 for oil gas 600 for other gas	Mo. aver. Mo. aver.	1 mile radius from mfg. works or at center of consumption or at Com- mission lab.
Pennsylvania	Apr., 1914	550 for gas as by-prod. of coke ovens 570 other gas 500 by-prod. of coke ovens 520 other gas	Mo. aver. Min.	1 mile radius from point of mfg. (10)
Rhode Island	None			
South Carolina	None			
South Dakota	None			
Tennessee	None			
Texas	None			
Utah	None			
Vermont	None			
Virginia	None			
Washington	June 15, 1912	600 550	Mo. aver. Min.	Gas furnished to customers
West Virginia	None			
Wisconsin	Oct., 1908	600 550	Mo. aver. Min.	1 mile radius from center of distribution
Wyoming	None			

Where the word "None" appears this means that the State authorities either have no jurisdiction in these matters or have adopted no requirements. In a few cases State authorities have adopted requirements for special cases; these are listed in the "cities" tabulated below.

In no case, except possibly Massachusetts, is there penalty provided for violation of the standards, except as this may be enforced under the State commission law providing general penalty for failure to comply with the Public Service Commission's order.

Candle-power requirements are not in force under any State jurisdiction except Massachusetts and New York, First District (Greater New York City). In Massachusetts the old State law fixing 16 candles as the minimum for three consecutive tests has not been repealed but is in effect superseded by the State Board's order fixing 528 B. t. u. minimum. The State law requiring 22 candles for all gas supplied in the First District of New York (Greater New York City) is still in force and is only superseded by the Commission's order fixing the heating value standard on their own initiative.

(1). The 528 B. t. u. requirement as a war measure supersedes the former requirement of 575 monthly average and 530 minimum. Test gas before compression if delivered to mains at pressure above two pounds.

(2). Also requires "tested in the place where it is consumed". For gas carried at 5 pounds or more, 530 monthly average and 520 minimum. No utility to lower former standard without consent of Commission.

(3). No utility to lower its former standard without consent of Commission. New Indiana rule provides for reduction in price if monthly average falls below 560 B. t. u.

(4). Test actually is at stations at least a quarter mile from works, Candle-power regulation is in effect superseded by this B. t. u. order, but is not really



repealed as yet. Penalties for violation of candle-power requirement do not seem to apply under present order.

(5). No utility to lower its former standard without approval of Commission.

(6). The values for Montana are on basis of local pressure, therefore, equivalent to about 600 and 570 for standard conditions.

(7). A very recent order for New Hampshire is reported unofficially as fixing 528 B. t. u. similar to Massachusetts standard.

(8). As a temporary war measure the Camden Coke Co. was allowed to furnish gas of 550 B. t. u. monthly average heating value.

(9). This is optional; the former requirement of 22 candle-power may be retained if desired.

Any lower monthly average B. t. u. may be used by any company if the price is lowered proportionately. This is only a war measure.

(10). If delivered to mains above 5 pounds, test before compression.

### MUNICIPAL REQUIREMENTS

The following tabulation gives the status of requirements regarding heating value and candle-power of gas supplied in various cities. All cities reported by the 1920 census as 25,000 or more in population are included, except such cities affected only by general State requirements or those where no manufactured gas is supplied. For the latter group see the tabulation below.

NOTE:—Requirements marked with an asterisk (\*) are those fixed by State authorities.

City	Date effective	Requirement	Remarks
Birmingham, Ala.		15 c. p. and 575 B. t. u. Mo. aver.	
Mobile, Ala.		None	Reported as supplying 15 c. p. and 600 B. t. u. mixed gas
Montgomery, Ala.		None	Reported as supplying 18 c. p. mixed gas
Berkeley, Cal.		570 B. t. u. Mo. aver.*	Receives gas from Oakland and thus governed by standard for that city
Los Angeles, Cal.	Dec. 27, 1907	18 c. p. and 600 B. t. u. Mo. aver.	Most of the gas is natural gas not affected by these requirements
Oakland, Cal.		570 B. t. u. Mo. aver.*	
Pasadena, Cal.	Sept. 30, 1914	600 B. t. u. Min.	
Sacramento, Cal.		None	
San Diego, Cal.	(1911)	550 B. t. u. Mo. aver.	
San Francisco, Cal.		600 B. t. u. Min. 19 c. p.	
San Jose, Cal.		None	Reported as supplying 600 B. t. u. oil gas
Wilmington, Del.		600 B. t. u.	
Jacksonville, Fla.		None	Reported as supplying 20 c. p. and 580 B. t. u. mixed gas
Tampa, Fla.		20 c. p.	
Atlanta, Ga.	Mar. 24, 1918	575 B. t. u. Mo. aver.* 550 B. t. u. Min.	
Augusta, Ga.		575 B. t. u. Mo. aver.* 550 B. t. u. Min.	Maximum value may also be fixed
Macon, Ga.		None	Reported as supplying 18 c. p. and 600 B. t. u. mixed gas

Savannah, Ga.	Jan., 1918	575 B. t. u. Mo. aver.* 550 Min. 20 c. p.	Minimum value may also be fixed This old local requirement is apparently still in force; see also state requirement
Fort St. Louis, Ill.			
Peoria, Ill.		16 c. p.	This old local requirement is apparently still in force; see also state requirement
Cedar Rapids, Iowa		600 B. t. u.	
Clinton, Iowa		16 c. p. and 600 B. t. u.	
Council Bluffs, Iowa		22 c. p.	
Davenport, Iowa		20 c. p.	
Des Moines, Iowa		560 B. t. u. as ordered by Federal Court in injunction suit	
Dubuque, Iowa		None	Reported as supplying 16 c. p. and 600 B. t. u. mixed gas
Sioux City, Iowa		21 c. p. and 600 B. t. u.	
Waterloo, Iowa		16 c. p. Min.	Also requires B. t. u. and c. p. to be not less than furnished in other Iowa cities of like size
New Orleans, La.		600 B. t. u. Mo. aver. min. 575 B. t. u. day aver. min.	At mfg. plant
Lewiston, Me.		None	Reported as supplying 22 c. p. and 600 B. t. u. water gas
Portland, Me.		None	Reported as supplying 15 c. p. and 575 B. t. u. mixed gas
Battle Creek, Mich.		None	
Bay City, Mich.		18 c. p.	1 mile from holder; c. p. value would be 16 or 20 if straight coal or water gas
Detroit, Mich.	Mar. 12, 1918	12 c. p. and 600 B. t. u. Mo. aver.	The 12 c. p. value is only while toluol plant is operated by Govt.; former value 18 c. p.
Flint, Mich.	Sept. 26, 1916	590 Mo. aver. 550 Min.	
Grand Rapids, Mich.		16 c. p. and 600 B. t. u.	
Jackson, Mich.		540 B. t. u. daily min. aver. of three tests at least 1 hr. apart within 24 hr. must be at least 565 16 c. p.	Would be 20 c. p. if became straight water gas
Kalamazoo, Mich.	Oct. 5, 1910	600 B. t. u. and 16 c. p. Min.	
Lansing, Mich.		550 Min. daily aver. 18 c. p. and 600 B. t. u. Min. aver.	
Saginaw, Mich.		16 c. p. and 570 B. t. u.	This c. p. value would become 20 if straight water gas
Duluth, Minn.		Mo. aver. of not less than 585; yearly aver. of not less than 600; daily min. 500.	
Minneapolis, Minn.		15 c. p. and 600 B. t. u. Mo. aver. 550 B. t. u. Min.	City has change to 10 c. p. under consideration at request of ordnance department

St. Paul, Minn.		14 c. p. and 600 B. t. u. Mo. aver. 550 Min.	
St. Louis, Mo.		600 B. t. u. (not enforced)	This requirement is temporarily set aside by city action
Springfield, Mo.		22 c. p. (evidently not enforced)	Reported as supplying 18 c. p. water gas; ordinance permits 18 c. p. only if coal gas
Lincoln, Nebr.		18 c. p. and 625 B. t. u.	
Omaha, Nebr.		23 c. p. at works or 21.2 c. p. at city testing station and 600 B. t. u.	18 for coal gas
South Omaha, Nebr.		None	Receives gas from Omaha and is protected by same requirements
Charlotte, N. C.		None	Reported as supplying 17 c. p. coal gas
Wilmington, N. C.		None	Reported as supplying 20 c. p. mixed gas
Cleveland, Ohio	Jan., 1911	16 c. p. and 600 B. t. u.	Mainly natural gas in this city
Lima, Ohio		22 c. p. (evidently not enforced)	Reported as supplying 20 c. p. water gas
Toledo, Ohio		16 c. p.	Mainly natural gas in this city
Youngstown, Ohio		None	Reported as supplying 17 c. p. 550 B. t. u. coal gas
Philadelphia, Pa.	Nov. 12, 1897	22 c. p. at city station 1 mile from wks.	This is provision of lease of city wks. to U. G. I. Co.
Newport, R. I.		None	Reported as supplying 16 c. p. mixed gas
Pawtucket, R. I.	June, 1906	16 c. p.	
Providence, R. I.	Feb., 1918	580 B. t. u.	Agreed upon by company and city until toluol plant shall start
Woonsocket, R. I.		None	Reported as supplying 16 c. p. 575 B. t. u. gas which is purchased from Pawtucket
Charleston, S. C.		20 c. p. and 600 B. t. u.	
Columbia, S. C.		None	Reported as supplying 21 c. p. and 575 B. t. u. water gas
Chattanooga, Tenn.		16 c. p. and 600 B. t. u.	
Knoxville, Tenn.		15 c. p.	
Memphis, Tenn.		20 c. p.	
Nashville, Tenn.		16 c. p.	
		15 c. p.	
Austin, Tex.		None	Reported as supplying 560-575 gas
El Paso, Tex.	Oct. 6, 1904	16 c. p.	
Galveston, Tex.		None	Reported as supplying 18 c. p. and 550 B. t. u. water gas
Houston, Tex.		18 c. p.	
San Antonio, Tex.		None	Water gas, quality not reported
Ogden, Utah	Jan. 15, 1913	500 B. t. u. Min.	
Salt Lake City, Utah		None	Reported as supplying 17 c. p. and 600 B. t. u. mixed gas
Lynchburg, Va.		None	
Norfolk, Va.		None	Reported as supplying 19 c. p. mixed gas

Portsmouth, Va.	None	Reported as supplying 17 c. p. and 575 B. t. u. mixed gas
Richmond, Va.	None Municipal operation	Reported as supplying 18 c. p. and 590 B. t. u. mixed gas
Roanoke, Va.	16 c. p. (600 B. t. u. monthly aver.; 550 daily min. aver.)	

The only State rule or laws, fixing candle-power of gas, are those established for single communities. However, the Public Service Commission of the First District of New York under such requirement is charged with the enforcement in this entire district (greater New York City) of a 22 candle-power requirement. Numerous Municipal candle-power requirements remain but a number of these are not actively enforced.

The following tabulation includes those cities reported by the 1910 census as more than 25,000 in population which are not supplied with manufactured gas.

Little Rock, Arkansas  
Kansas City, Kansas  
Topeka, Kansas  
Wichita, Kansas  
Covington, Kentucky  
Lexington, Kentucky  
Louisville, Kentucky  
Newport, Kentucky  
Shreveport, Louisiana  
Joplin, Missouri  
Kansas City, Missouri  
St. Joseph, Missouri  
Akron, Ohio  
Canton, Ohio  
Cincinnati, Ohio

Columbus, Ohio  
Dayton, Ohio  
Hamilton, Ohio  
Lorain, Ohio  
Newark, Ohio  
Springfield, Ohio  
Zanesville, Ohio  
Muskogee, Oklahoma  
Oklahoma City, Oklahoma  
Dallas, Texas  
Fort Worth, Texas  
Waco, Texas  
Huntington, West Virginia  
Wheeling, West Virginia

(Continued from page 373)

"Gas companies can well afford to run, or furnish, the lamps and maintenance in their commercial districts free of charge, if necessary, in order to hold the gas lighting business there. They could go even further and, rather than lose the lighting business in a residential section, afford to give their maintenance free. For instance, in a residential home where, say, the gas bill would average \$6.00 a month (\$2.00 for light and \$4.00 for fuel), if they should wire the house and use electricity for light, the gas company's income from that one customer would be reduced by \$2.00, but the cost to serve him wouldn't be reduced one cent. Therefore, how much concession could the gas company afford to give in the way of service rather than lose that extra \$2.00 worth of business? And now multiply this \$2.00 by 1,000, 10,000 or 100,000, according to the number of residence customers they might have.

(Continued from page 354)

Another manager writes thus:

"I am satisfied we will get results of your trip steadily for a long time to come. It has done us a lot of good too, and independent of the direct sales because it has given us all a new light on things."

We also quote from a third letter as follows:

"In behalf of the Commercial Department we take this opportunity in thanking the Association for the recent visit of your Mr. Wm. A. Ehlers.

"We have been successful in closing orders for several industrial appliances and paving the way for future work along the lines mapped out to us by Mr. Ehlers.

"We can speak very highly of the untiring efforts of Mr. Ehlers and no proposition that we were confronted with was too large or too small for his knowledge and we are well pleased with the business contracted for and for future activities along our lines of work."

These expressions of satisfaction were unsolicited and we believe speak very well for the approval of the Industrial Fuel Engineering Service.



## AMERICAN GAS ASSOCIATION, Inc.

## List No. 34—May, 1920

## Rate Increases Secured.

Where information is not secured from company receiving increase, the source of information is noted in brackets. See Cumulative List No. 5 of December, 1919, for explanation of abbreviations, and former increases. This list includes only increases reported as secured subsequent to March, 1920.

## COLORADO

*Greeley*: Gas & Fuel Co. reports increase effective Oct. 1, 1919. New rate: 1st 300 c. f. 75¢ net—next 2 MCF \$1.60 per M—next 3 MCF \$1.50—next 15 MCF \$1.40—next 30 MCF \$1.30—next 50 MCF \$1.20. Over 100 MCF \$1.10 per M, disc. 10¢ per M 10 days. M. M. Chge. 75¢ per month, ordinary size meters—larger meters increased charge. Old rates 10¢ less per M each block. M. M. Chge. 50¢ per month.

## INDIANA

*Elkhart*: Gas & Fuel Co. reports old gross rate: 1st 15 MCF \$1.05 per M—next 15 MCF 95¢—next 20 MCF 85¢—next 50 MCF 75¢—next 100 MCF 65¢. Over 200 MCF 60¢ per M. M. M. Chge. 50¢ per month. New rate effective Feb. 1, 1920: 1st 15 MCF \$1.20—next 15 MCF \$1.10—next 20 MCF \$1.00—next 50 MCF 95¢—next 100 MCF 90¢. Over 200 MCF 85¢ per M. M. M. Chge. 85¢ per month; disc. 10¢ per M each block. New rate not acceptable. Court action contemplated.

*Greencastle*: Gas & Electric Co. reports second increase effective Jan. 1, 1920. 1st 5 MCF \$1.75—next 5 MCF \$1.65. Over 10 MCF \$1.35 per M. M. M. Chge. 75¢ per month.  
*Rochester*: Gas & Fuel Co. reports second increase. 1st 4 MCF \$1.65—next 4 MCF \$1.60—next 4 MCF \$1.35. Over 12 MCF \$1.25 per M. M. M. Chge. 75¢ per month.  
*Seymour*: Interstate Public Service Co. reports. Old rate: 1st 5 MCF \$1.10—next 5 MCF \$1.00—next 15 MCF 90¢—next 25 MCF 80¢—next 25 MCF 70¢. Over 75 MCF 60¢ per M; disc. 10¢ per M each block. New rate effective April 1, 1920. 1st 5 MCF \$1.40—next 5 MCF \$1.30—next 15 MCF \$1.20—next 25 MCF \$1.10. Over 50 MCF \$1.00 per M; disc. 10¢ per M, each block.

## IOWA

*Boone*: Gas Co. reports increase effective Sept. 1, 1919. Old rate: \$1.40 net per MCF. New rate: \$1.60 net per MCF. Company reports to City Council every three months.  
*Charles City*: Gas Co. reports second increase, \$1.55 gross, \$1.35 net, effective 1919. Now reports third increase effective Jan. 1, 1920. New rate: 1st 5 MCF \$1.80—next 5 MCF \$1.75—next 10 MCF \$1.65—next 40 MCF \$1.55. Over 60 MCF \$1.45 per M; disc. 20¢ per M, each block. M. M. Chge. 80¢ per month. For former rates see Cum. List No. 5.  
*Davenport*: Peoples Light Co. reports increase effective Jan. 1, 1919. Old rate: \$1.00 per MCF; disc. 10¢ per M, 10 days. New rate: \$1.00 per MCF net, with penalty of 10¢ per M, if unpaid 10 days.

## MAINE

*Augusta*: Central Maine Power Co. reports increase effective July 31, 1919. Old rate: \$1.60 per MCF, disc. 10¢ per M. New rate: \$2.00 per MCF; disc. 10¢ per M.

## MASSACHUSETTS

*Boston*: Consolidated Gas Co. reports fourth increase effective April 5, 1920. New rate: \$1.10 net per MCF, pending final determination of application for rate of \$1.20 per MCF, asked for.  
*Brookton*: Gas Light Co. reports fifth increase effective April 10, 1920. New rate: 1st 100 c. f. 70¢—next 400 c. f. 20¢ per 100 c. f.—next 19.5 MCF \$1.20 per M—next 30 MCF \$1.10—next 50 MCF \$1.00 per M. M. M. Chge. 50¢ per month. For former rates see Cum. List No. 5.  
*Lowell*: Gas Light Co. reports fourth increase effective Feb. 15, 1920. New rate: \$1.40 gross, \$1.30 net per MCF. For former rates see Cum. List No. 5.  
*Taunton*: Gas Light Co. reports third increase effective April 1, 1920. New rate: Base price \$1.55 per MCF; disc. 10¢ per M, 15 days. Over 125 MCF per quarter, \$1.45 per M—over 800 MCF per quarter, \$1.20 per MCF; disc. 10¢ per M, 15 days, each block. Also supplies South Dighton \$1.65 per MCF; Norton and Mansfield \$1.75 per MCF; disc. 10¢ per M, each. Old rates: 15¢ less per MCF, each block throughout.  
*Ware*: Otis Co. Gas Dept. reports third increase effective April 1, 1920. New rate: 1st 20 MCF \$2.25 net per M. Over 200 MCF \$2.15 net per M.

## MICHIGAN

*Battle Creek*: Calhoun Gas Co. reports third increase effective April 1, 1920. New rate: \$1.10 net per MCF. S. Chge. 25¢ per meter per month. M. M. Chge. 50¢ per month. For former rates see Cum. List No. 5.

**Belding:** Gas Works reports increase effective Oct. 1, 1919. Old rate: \$1.25 net per MCF. New rate: \$1.50 net per MCF. Increase limited to two years.

#### NEW YORK

**Coney Island:** Brooklyn Borough Gas Co. granted second increase by P. S. C. effective April 1, 1920, from \$1.10 to \$1.15 net per MCF.

**Freeport:** Nassau & Suffolk Ltg. Co. reports increase effective Feb. 20, 1920. Old rate: \$1.50 net per MCF. New rate: \$1.75 net per MCF.

**Onconta:** N. Y. State Gas & Elec. Corp. reports increase effective Sept. 8, 1918. Old rate: \$1.65 net per MCF. New rate: \$1.85 net per MCF.

#### NORTH CAROLINA

**Winston-Salem:** Gas Co. reports S. C. C. granted second increase effective March 1 to July 1, 1920. New rate: 1st 10 MCF \$1.75—next 10 MCF \$1.50. Over 20 MCF \$1.25 per M; disc. 5¢ per M. M. M. Chge. 75¢ per month.

#### OHIO

**Paulding:** Gas Light & Fuel Co. reports. Old rate: \$1.50 gross, \$1.40 net, first increase 1918, \$1.80 gross, \$1.60 net. M. M. Chge. 25¢ per M. New rate: (second increase) effective April 1, 1920. \$1.95 gross, \$1.85 net per MCF. M. M. Chge. 50¢ per month.

**Van Wert:** Gas Light Co. reports increase effective Jan. 8, 1920. Old rate: \$1.85 per MCF; disc. 10¢ per M, 10 days. M. M. Chge. 50¢ per month. New rate: \$1.85 net per MCF, with penalty of 10¢ per M, if unpaid, 10 days. M. M. Chge. 50¢ per month.

#### PENNSYLVANIA

**Lebanon:** Gas & Fuel Co. reports increase effective Oct. 1, 1918. New rate: Rate "A" Service Chge. 50¢ per month, plus Consumption Chge. \$1.40 per MCF; disc. 10¢ per M. Rate "B" Industrial and Wholesale demand Chge. per 100 c. f. Hourly demand \$60 per annum, payable in equal monthly installments—plus Customer Chge. \$12 per annum—plus Consumption Chge. 1st 25 MCF 85¢ per M—next 75 MCF 80¢—next 500 MCF 75¢—next 400 MCF 65¢. Over 1,000 MCF 60¢; disc. each block 10¢ 10 days. Old rate: Change in Rate "A" disc. 10¢ instead of 10¢ per M. Rate "B" change in Consumption Chge. Old rate: 1st 25 MCF 75¢ per M—next 75 MCF 50¢—next 900 MCF 45¢. Over 1,000 MCF 35¢, same disc.

**Wilkes-Barre:** Co. reports increase effective May 12, 1919. New rate: 1st 10 MCF \$1.30—next 20 MCF \$1.20—next 20 MCF \$1.10. Over 50 MCF \$1.00 per M; disc. 10¢ per M, 10 days. M. M. Chge. 50¢ per month. P. P. Meters \$1.25 net per MCF. M. M. Chge. 50¢ per month.

#### SOUTH DAKOTA

**Aberdeen:** Gas Co. reports increase effective Oct. 1, 1917. Old rate: 1st 5 MCF \$1.70—next 10 MCF \$1.50—next 15 MCF \$1.40—next 25 MCF \$1.30. Over 55 MCF \$1.20 per M. M. M. Chge. 25¢ per month. New rate: 1st 5 MCF \$2.00 net per M—next 10 MCF \$1.80—next 15 MCF \$1.25—next 25 MCF \$1.10. Over 55 MCF \$1.00 per M. M. M. Chge. 50¢ per month.

#### TENNESSEE

**Memphis:** Gas & Electric Co. increase granted by P. U. C. Old rate: 1st MCF \$1.00, over 1 MCF 80¢ net per M. M. M. Chge. 60¢ per month. New rate effective April 1, 1920: \$1.20 gross, \$1.10 net per MCF. S. Chge. 50¢ per Meter. M. M. Chge. 50¢ per month.

#### TEXAS

**El Paso:** Gas Co. reports increase effective April 8, 1920. Old rate: 1st 10 MCF \$1.50—next 10 MCF \$1.40—next 20 MCF \$1.20. Over 40 MCF \$1.10 per M; disc. 20¢ per M, each block. New rate: 1st 10 MCF \$1.60—next 10 MCF \$1.30—next 20 MCF \$1.10. Over 40 MCF \$1.00, disc. 10¢ per M, each block. Increase based on 8% return on physical valuation, less than assessed valuation.

#### VERMONT

**St. Johnsbury:** Gas Co. reports increase effective Jan. 1, 1918. 1st 5 MCF \$2.00 per M—next 15 MCF \$1.75—next 10 MCF \$1.65—next 10 MCF \$1.55—next 60 MCF \$1.45—next 60 MCF \$1.35. Over 160 MCF \$1.25 per M, all prices net. Old rate: 25¢ less per M each block.

#### VIRGINIA

**Norfolk:** City Gas Co. reports S. C. C. grants increase effective April 1, 1920. 1st 2 MCF \$1.70 per M, each successive 2 MCF 1¢ less per M, making eleventh rate 2 MCF \$1.60 per M. Each next successive 2 MCF 2¢ less per M, making twentieth rate 2 MCF \$1.42 per M, all over 40 MCF \$1.40 per M; disc. 10¢ per M. each block. Old rates: 40¢ less per M, each block. M. M. Chge. old rate: 50¢ per month. New rate: 75¢ per month. New rate based on monthly oil cost. Base price 10¢ per gal., for every 1¼¢ per gal. decline, each block rate decreased 5¢ per M, for every 1¼¢ per gal. increase, each block rate increased 5¢ per M.

(Continued on page 402)

# Classified Directory--Manufacturers of Gas Equipment

Company Members Only, American Gas Association, Inc.

## ARC LAMPS (Gas)

General Gas Light Co., New York, N. Y., and  
Kalamazoo, Mich.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
Welsbach Co., Gloucester, N. J.

## AUTOMATIC CONDENSATION RECEIVERS

Plant Engineering & Equipment Co., Inc., 192  
Broadway, New York, N. Y.

## BENCHES

J. H. Gautier & Co., Jersey City, N. J.  
Russell Engineering Co., St. Louis, Mo.  
The Gas Machinery Co., Inc., Cleveland, Ohio  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.

## BENCH IRON WORK

Banner Iron Works, 4560 Shaw Ave., St. Louis,  
Mo.  
Davis & Farnum Mfg. Co., Waltham, Mass.  
Isbell-Porter Co., Newark, N. J.  
Russell Engineering Co., St. Louis, Mo.  
The Bartlett Hayward Co., Baltimore, Md.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Equipment Co., 60 Wall St., New  
York, N. Y.  
The Parker-Russell Mining & Mfg. Co., St.  
Louis, Mo.  
The Stacey Mfg. Co., Cincinnati, Ohio  
The Western Gas Construction Co., Fort Wayne,  
Ind.

## BOILERS (Gas)

Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
General Gas Appliance Co., 103 Park Ave., New  
York, N. Y.  
Hugo Manufacturing Co., West Duluth, Minn.  
Wm. Kane Mfg. Co., Inc., 1915 Adams St.,  
Philadelphia, Pa.  
Kidd & Co., 169 Chambers St., New York, N. Y.  
National Machine Works, Sheffield & North Aves.,  
Chicago, Ill.  
F. W. Oldfeldt & Sons, Nyack, N. Y.  
The Bryant Heater & Mfg. Co., Cleveland, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.

## BOILERS (Gas for House Heating)

Dodd Heating Systems Limited, Toronto, Ont.  
Kidd & Co., 169 Chambers St., New York, N. Y.  
The Bryant Heater & Mfg. Co., Cleveland, Ohio

## BOILERS (Waste Heat)

The Bartlett Hayward Co., Baltimore, Md.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.

## BLOWERS, BOOSTERS, EXHAUSTERS

Connelly Iron Sponge & Governor Co., 227 Fulton  
St., New York, N. Y.  
Gas Engineering Co., Ingram Ave., Trenton,  
N. J.  
Isbell-Porter Co., Newark, N. J.  
Maxon-Premix Burner Co., Muncie, Ind.  
The Needham Gas Appliance Co., 1 S. Lafayette  
St., New York City.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.  
The C. M. Kemp Mfg. Co., Baltimore, Md.  
Monarch Engineering & Mfg. Co., American  
Bldg., Baltimore, Md.  
The Surface Combustion Co., 366 Gerard Ave.,  
Bronx, N. Y.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.  
The Western Gas Construction Co., Fort Wayne,  
Ind.  
Wilbraham-Green Blower Co., Pottstown, Pa.  
L. J. Wing Mfg. Co., 362 West 13th St., New  
York, N. Y.

## BRAZING TABLES

Rathbone, Sard & Co., Albany, N. Y.  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.

## BROILERS (Hotel)

Geo. M. Clark & Co., Div., Chicago, Ill.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
Rathbone, Sard & Co., Albany, N. Y.  
The Michigan Stove Co., Detroit, Mich.

## BURNERS (Industrial)

American Gas Furnace Co., 24 John St., New  
York, N. Y.  
Century Stove & Mfg. Co., Johnstown, Pa.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
Equitable Meter Co., Pittsburgh, Pa.  
General Fire Extinguisher Co., Providence, R. I.  
General Gas Appliance Co., 103 Park Ave., New  
York, N. Y.  
Charles A. Hones, Inc., 91 Noble St., Brooklyn,  
N. Y.  
International Hale Gas Mixer Co., Providence,  
R. I.  
Hugo Manufacturing Co., West Duluth, Minn.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
The Maxon Furnace & Engineering Co., Muncie,  
Ind.  
National Machine Works, Sheffield & North Aves.,  
Chicago, Ill.  
Needham Gas Appliance Co., 1 S. Lafayette St.,  
New York City.  
Tate-Jones & Co., Inc., 50 Church St., New York,  
N. Y.  
The Baltimore Gas Appliance & Mfg. Co., Balti-  
more, Md.  
The Eclipse Stove Co., Mansfield, Ohio  
The Improved Appliance Co., 419 Kent Ave.,  
Brooklyn, N. Y.  
The C. M. Kemp Mfg. Co., Baltimore, Md.  
Monarch Engineering & Mfg. Co., American  
Bldg., Baltimore, Md.  
The Surface Combustion Co., 366 Gerard Ave.,  
Bronx, N. Y.  
The A. H. Wolff Gas Radiator Co., 4 Great Jones  
St., New York, N. Y.

## BURNERS (Lighting)

American Meter Co., Inc., 105 W. 40th St., New  
York, N. Y.  
Wm. M. Crane Co., 16 W. 32d St., New York,  
N. Y.  
General Gas Light Co., New York, N. Y., and  
Kalamazoo, Mich.  
Johnson Gas Appliance Co., Cedar Rapids, Iowa  
Welsbach Co., Gloucester, N. J.

## BY-PRODUCT OVENS

By-Product Coke Corp., Chicago, Ill.  
Foundation Oven Corporation, Woolworth Build-  
ing, New York, N. Y.  
Semet-Solvay Co., Syracuse, N. Y.  
The Gas Machinery Co., Cleveland, Ohio  
The Improved Equipment Co., 60 Wall St., New  
York, N. Y.  
The Koppers Co., Pittsburgh, Pa.  
The Parker-Russell Mining & Mfg. Co., St.  
Louis, Mo.

## BY-PRODUCT RECOVERY APPARATUS

Foundation Oven Corporation, Woolworth Build-  
ing, New York, N. Y.  
Isbell-Porter Co., Newark, N. J.  
The Bartlett Hayward Co., Baltimore, Md.  
The Gas Machinery Co., Cleveland, Ohio  
The Koppers Co., Pittsburgh, Pa.  
The U. G. I. Contracting Co., Broad & Arch Sts.,  
Philadelphia, Pa.  
The Western Gas Construction Co., Fort Wayne,  
Ind.

**CALORIMETERS**

American Meter Co., Inc., 105 W. 40th St., New York, N. Y.  
 The Brown Instrument Co., Phila., Pa.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.  
 Superior Meter Co., Brooklyn, N. Y.

**CASING, TUBING (Steel)**

National Tube Co., Frick Bldg., Pittsburgh, Pa.

**CASTINGS (Grey Iron)**

Banner Iron Works, 4360 Shaw Ave., St. Louis, Mo.

**CHARGING COAL**

Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**CHIMNEYS (Radial Brick)**

Alphons Custodis Chimney Construction Co., Marquette Bldg., Chicago, Ill.

**COAL AND COKE (Conveyors, Crushers, Screeners)**

R. H. Beaumont Co., 315 Arch St., Philadelphia, Pa.  
 Stephens-Adams Mfg. Co., Aurora, Ill.  
 Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**COAL TAR PRODUCTS & CHEMICALS**

The Barrett Company, 17 Battery Place, New York, N. Y.

**COCKS (Ranges, Water Heaters, Service and Meter)**

A-B Stove Co., Battle Creek, Mich.  
 Claus Automatic Gas Cock Co., Milwaukee, Wis.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Kitson Co., 2837 Oakford St., Philadelphia, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Pratt & Cady Company, Inc., Hartford, Conn.  
 Standard Brass Works, Detroit, Mich.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Roberts Brass Mfg. Co., Detroit, Mich.

**COMPRESSORS**

Plant Engineering & Equipment Co., 192 Broadway, New York, N. Y. (Air Compressors).  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**CONDENSERS**

Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**COOKING AUXILIARIES**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 The G. S. Blodgett Co., Burlington, Vt.  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.

The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Scott Gas Appliance Co., 1311 E. St., N. W., Washington, D. C.

**COUPLINGS**

S. R. Dresser Mfg. Co., Bradford, Pa.

**CYLINDERS (Pressure)**

National Tube Co., Frick Bldg., Pittsburgh, Pa.

**DECALCOMANIA PRODUCTS**

The Meyercord Co., Inc., Chamber of Commerce Bldg., Chicago, Ill.

**DYES, DISINFECTANTS, DRY COLORS**

The Sherwin-Williams Co., Cleveland, Ohio, New York, N. Y.

**ELECTRIC CONTROLLING DEVICES**

The Cutler-Hammer Mfg. Co., Milwaukee, Wis.

**EXCHANGERS (Heat)**

The Bartlett Hayward Co., Baltimore, Md.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**EXPERT APPRAISAL**

Steere Engineering Co., Detroit, Mich.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**EXTRACTORS (Tar, Dust, Fumes)**

Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Isbell-Porter Co., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**FITTINGS**

A-B Stove Co., Battle Creek, Mich.  
 Banner Iron Works, 4360 Shaw Ave., St. Louis, Mo.  
 Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
 Claus Automatic Gas Cock Co., Milwaukee, Wis.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 S. R. Dresser Mfg. Co., Bradford, Pa.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 Kitson Co., 2827 Oakford St., Philadelphia, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
 Standard Brass Works, Detroit, Mich.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Roberts Brass Mfg. Co., Detroit, Mich.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 Welsbach Co., Gloucester, N. J.

**FITTINGS (Malleable Iron)**

Stanley G. Flagg & Co., 1421 Chestnut St., Philadelphia, Pa.

**FLEXIBLE TUBING**

Atlantic Tubing Co., Providence, R. I.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Titeflex Metal Hose Corp., Badger Ave., Newark, N. J.

**FLASHLIGHTS AND BATTERIES**

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.

**FUEL BRIQUETTING**

Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 General Briquetting Co., 35 Broad St., New York, N. Y.



**FURNACES**

American Gas Furnace Co., 24 John St., New York, N. Y.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Geist Mfg. Co., Atlantic City, N. J.  
 Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Maxon-Premix Burner Co., Muncie, Ind.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 Needham Gas Appliance Co., Inc., 1 S. Lafayette St., New York.  
 Russell Engineering Co., St. Louis, Mo.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.  
 Monarch Engineering & Mfg. Co., American Bldg., Baltimore, Md.

**GAS ENGINES**

The Bartlett Hayward Co., Baltimore, Md.

**GAS ENGINE COCKS AND VALVES**

Standard Brass Works, Detroit, Mich.

**GAS IRONS**

A-B Stove Co., Battle Creek, Mich.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Milwaukee Gas Specialty Co., Milwaukee, Wis.  
 Perfect Combustion Co., Chicago, Ill.  
 Strause Gas Iron Co., Philadelphia, Pa.

**GAS LOGS**

Backus Heater & Foundry Co., Inc., Boston, Mass.  
 The Mead Gas Heater Co., Delawanna, N. J.  
 Strait & Richards, Inc., Newark, N. J.

**GAS MAIN BAGS AND GAS MAIN STOPPERS**

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York City.

**GAS MIXERS**

American Gas Furnace Co., 24 John St., New York, N. Y.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Geist Mfg. Co., Atlantic City, N. J.  
 General Fire Extinguisher Co., Providence, R. I.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 Improved Appliance Co., Inc., 419 Kent Ave., Brooklyn, N. Y.  
 International Hale Gas Mixer Co., Providence, R. I.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Maxon-Premix Burner Co., Muncie, Ind.  
 Strait & Richards, Inc., Newark, N. J.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 Monarch Engineering & Mfg. Co., American Bldg., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**GAS PLANTS (Blue)**

Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS PLANTS (Carbureted Water)**

Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Gas Machinery Co., Cleveland, Ohio  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.

The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS PLANTS (Coal) (Engineers)**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Isbell-Porter Co., Newark, N. J.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 Russell Engineering Co., St. Louis, Mo.  
 Semet-Solvay Co., Syracuse, N. Y.  
 Stere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Gas Machinery Co., Cleveland, Ohio  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**GAS RANGE WATER HEATERS**

Elliott Water Heater Co., Inc., 1246 Myrtle Ave., Brooklyn, N. Y.

**GOVERNORS, PRESSURE VACUUM & PUMP**

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York.  
 Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

**HEATERS (Room)**

Backus Heater & Foundry Co., Inc., Boston, Mass.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Estate Stove Co., Hamilton, Ohio  
 Geist Mfg. Co., Atlantic City, N. J.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.  
 Hugo Manufacturing Co., West Duluth, Minn.  
 Illinois Specialty Mfg. Co., Bloomington, Ill.  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 Lawson Mfg. Co., Pittsburgh, Pa.  
 New Process Stove Co. Div., Cleveland, Ohio  
 Reliable Stove Co. Div., Cleveland, Ohio  
 Reznor Mfg. Co., Mercer, Pa.  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 J. B. Slattery & Bro. Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 Strait & Richards, Inc., Newark, N. J.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Champion Stove Co., Cleveland, Ohio  
 The Mead Gas Heater Co., Delawanna, N. J.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio.  
 The Sanitary Heating Co., 233 37th St., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 Welsbach Co., Gloucester, N. J.

**HEATERS (Garage)**

Kidde & Co., 169 Chambers St., New York, N. Y.

**HEATERS (Pressing and Soldering Irons)**

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Estate Stove Co., Hamilton, Ohio  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.



Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Strait & Richards, Inc., Newark, N. J.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

#### HIGH PRESSURE SYSTEMS

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Needham Gas Appliance Co., Inc., 1 S. Lafayette St., New York City.  
 Selas Co., 521 W. 23d St., New York, N. Y.  
 The Gas Machinery Co., Cleveland, Ohio  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

#### HOLDERS (Structural Steel Works)

Banner Iron Works, 4560 Shaw Ave., St. Louis, Mo.  
 Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

#### HOT PLATES

A-B Stove Co., Battle Creek, Mich.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Erie Stove & Mfg. Co., Erie, Pa.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Rathbone, Sard & Co., Albany, N. Y.  
 J. B. Slattery & Bro., Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Champion Stove Co., Cleveland, Ohio  
 The Eclipse Stove Co., Mansfield, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Michigan Stove Co., Detroit, Mich.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio  
 Union Stove Works, 20 Beckman St., New York, N. Y.  
 Weir Stove Co., Taunton, Mass.

#### IRONING MACHINES

American Ironing Machine Co., 168 N. Michigan Ave., Chicago, Ill.  
 Barnett Foundry & Machine Co., Lyons Ave., Irvington, N. J.

#### INCINERATORS

Estate Stove Co., Hamilton, Ohio  
 Ruud Mfg. Co., Pittsburgh, Pa.

#### INSTRUMENTS (Measuring, Testing and Recording)

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
 Bailey Meter Co., Cleveland, Ohio  
 The Brown Instrument Co., Phila., Pa.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Precision Instrument Co., 21 Halsey St., Newark, N. J.  
 Republic Flow Meters Co., 565 Washington Blvd., Chicago, Ill.  
 Steere Engineering Co., Detroit, Mich.

Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

#### INSULATING MATERIALS

Celite Products Co., 11 Broadway, New York, N. Y.  
 Davis & Farnum Mfg. Co., Waltham, Mass.

#### KILNS (For Firing Glass, China and Pottery)

B. F. Drakenfeld & Co., Inc., 50 Murray St., New York, N. Y.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Russell Engineering Co., St. Louis, Mo.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

#### LIGHTERS (Ranges)

Claus Automatic Gas Cook Co., Milwaukee, Wis.  
 Milwaukee Gas Specialty Co., Milwaukee, Wis.  
 Safety Gas Lighter Co., Haverhill, Mass.  
 Strause Gas Iron Co., Philadelphia, Pa.  
 The Michigan Stove Co., Detroit, Mich.  
 Welsbach Co., Gloucester, N. J.

#### LIGHTING (Fixtures)

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
 Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
 Welsbach Co., Gloucester, N. J.

#### LIGHTING (Gas Domes, Portables, etc.)

Will W. Barnes, 31 Chelsea Place, East Orange, N. J.  
 Kramer Bros. Lamp Co., 585 Broadway, New York, N. Y.  
 Royal Art Glass Co., 243 Canal St., New York, N. Y.  
 Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
 Welsbach Co., Gloucester, N. J.

#### LIGHTING (Glassware)

Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.  
 Welsbach Co., Gloucester, N. J.

#### LIGHTING (Incidentals)

Storrs Mica Co., Owego, N. Y.

#### LIGHTING (Mantles)

General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.  
 Welsbach Co., Gloucester, N. J.

#### METAL RECEPTACLES

American Gas Furnace Co., 24 John St., New York, N. Y.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Charles A. Hones, Inc., 91 Noble St., Brooklyn, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.  
 United Lead Co., 111 Broadway, New York, N. Y.

#### METERS

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
 Bailey Meter Co., Cleveland, Ohio  
 Cleveland Gas Meter Co., Cleveland, Ohio  
 Equitable Meter Co., Pittsburgh, Pa.

John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.  
 Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Metric Metal Works, Erie, Pa.  
 Pittsburgh Meter Co., East Pittsburgh, Pa.  
 Precision Instrument Co., 21 Halsey St., Newark, N. J.  
 Rotary Meter Co., 52 Vanderbilt Ave., New York, N. Y.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Cutler-Hammer Mfg. Co., Milwaukee, Wis.  
 The Sprague Meter Co., Bridgeport, Conn.  
 Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

**METERS (Air and Steam)**

Pittsburgh Meter Co., East Pittsburgh, Pa.  
 Republic Flow Meters Co., 565 Washington Blvd., Chicago, Ill.  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.

**METER CONNECTIONS, SEALS, Etc.**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Cleveland Gas Meter Co., Cleveland, Ohio  
 S. R. Dresser Mfg. Co., Bradford, Pa.  
 Equitable Meter Co., Pittsburgh, Pa.  
 Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
 D. McDonald & Co., Albany, N. Y.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Lattimer Stevens Co., Columbus, Ohio  
 The Sprague Meter Co., Bridgeport, Conn.  
 Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.  
 Pittsburgh Meter Co., East Pittsburgh, Pa.

**METERS (Steam, Condensation, Oil, Hot and Cold Water)**

Pittsburgh Meter Co., Gasoline, East Pittsburgh, Pa.  
 Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

**METER PROVERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 John J. Griffin & Co., Philadelphia, Pa.  
 Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Pittsburgh Meter Co., East Pittsburgh, Pa.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

**METER SHELF**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.

**OFFICE LABOR SAVING DEVICES**

Addressograph Co., Chicago, Ill.  
 Burroughs Adding Machine Co., Detroit Mich.  
 Elliott-Fisher Co., Harrisburg, Pa.  
 Kalamazoo Loose-Leaf Binder Co., Kalamazoo, Mich.  
 Library Bureau, Boston, Mass.  
 Monroe Calculating Machine Co., Woolworth Bldg., New York, N. Y.  
 Remington Typewriter Co., 374 Broadway, New York.  
 The Rand Co., North Tonawanda, N. Y.  
 Underwood Typewriter Co., Vesey St., New York, N. Y.

**OIL (Diaphragm)**

John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.  
 Superior Meter Co., Brooklyn, N. Y.

**OVENS (Baking and Cooking)**

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Famous Oven Manufacturing Co., 170 W. 42nd St., New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 E. E. Steiner & Co., Inc., 20 Orange St., Newark, N. J.  
 The G. S. Blodgett Co., Burlington, Vt.  
 The Crandall-Pettee Co., Hudson St., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Ohio State Stove & Mfg. Co., Columbus, Ohio  
 The Union Steel Products Co., Ltd., Albion, Mich.  
 The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

**OVENS (Annealing, Japanning, Drying, Core, etc.)**

Famous Oven Manufacturing Co., 110 W. 42nd St., New York, N. Y.  
 Gehnrich Indirect Heat Oven Co., Inc., 63 Franklin Ave., Brooklyn, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Johnson Gas Appliance Co., Cedar Rapids, Iowa  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 E. E. Steiner & Co., Inc., 20 Orange St., Newark, N. J.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The C. M. Kemp Mfg. Co., Baltimore, Md.  
 Monarch Engineering & Mfg. Co., American Bldg., Baltimore, Md.  
 The Surface Combustion Co., 366 Gerard Ave., New York, N. Y.  
 The Union Steel Products Co., Ltd., Albion, Mich.  
 Young Bros. Co., Detroit, Mich.

**OVENS (Warming)**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Meek Oven Mfg. Co., 18 W. 34th St., New York, N. Y.  
 The G. S. Blodgett Co., Burlington, Vt.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Union Steel Products Co., Ltd., Albion, Mich.

**PAINTS AND VARNISHES**

The Sherwin-Williams Co., Cleveland, Ohio, New York, N. Y.

**PHOTOMETERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 Nathaniel Tufts Meter Works, Boston, Mass.

**PIPE**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 General Fire Extinguisher Co., Providence, R. I.  
 National Tube Co., Frick Bldg., Pittsburgh, Pa.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PIPE CASTINGS AND SPECIALS**

Banner Iron Works, 4360 Shaw Ave., St. Louis, Mo.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 Isbell-Porter Co., Newark, N. J.  
 Gas Engineering Co., Ingram Ave., Newark, N. J.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**PIPE CLAMPS AND SLEEVES**

Davis & Farnum Mfg. Co., Waltham, Mass.  
 S. R. Dresser Mfg. Co., Bradford, Pa.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.

**PIPE PACKING**

Celite Products Co., 11 Broadway, New York, N. Y.  
 General Fire Extinguisher Co., Providence, R. I.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PIPE TOOLS (Caulking, Cutting, Tapping)**

General Fire Extinguisher Co., Providence, R. I.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 United Lead Co., 111 Broadway, New York, N. Y.

**PLATE WARMERS**

Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York, N. Y.  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

**PORCELAIN ENAMEL PARTS (Stoves, Lamps, Linings, Stamping and Spinnings)**

Baltimore Enamel & Novelty Co., Baltimore, Md.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 The Enamel Products Co., Cleveland, Ohio  
 The Porcelain Enamel & Mfg. Co., Baltimore, Md.  
 The Union Steel Products Co., Ltd., Albion, Mich.

**PORCELAIN ENAMEL PLANTS (Installers)**

The Porcelain Enamel & Mfg. Co., Baltimore, Md.

**PRESSURE GAUGES**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Bacharach Industrial Instrument Co., Pittsburgh, Pa.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 D. McDonald & Co., Albany, N. Y.  
 Maryland Meter Works, Baltimore, Md.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Brown Instrument Co., Phila., Pa.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Gas Machinery Co., Cleveland, Ohio  
 The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 Nathaniel Tufts Meter Works, Boston, Mass.

**PYROMETERS**

The Brown Instrument Co., Phila., Pa.

**PUMPS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 Nathaniel Tufts Meter Works, Boston, Mass.  
 Plant Engineering & Equipment Co., Inc., 193 Broadway, New York, N. Y. (Centrifugal, Reciprocating & Sump).  
 Superior Meter Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 L. J. Wing Mfg. Co., 362 West 13th St., New York, N. Y.

**PURIFIERS**

Camden Iron Works, Camden, N. J.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Newark, N. J.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**PURIFYING MATERIALS**

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Eph Lyon, Trust Company Bldg., Franklin, Pa.  
 Gas Purifying Materials Co., Long Island City, N. Y.  
 J. F. Henderson Co., 1707 Commonwealth Bldg., Pittsburgh, Pa.  
 Iron Hydroxide Co., Paschall Station, Philadelphia, Pa.

**RADIATORS**

James B. Clow & Sons, Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 General Fire Extinguisher Co., Providence, R. I.  
 Hugo Manufacturing Co., West Duluth, Minn.  
 Kiddle & Co., 169 Chambers St., New York, N. Y.  
 J. B. Slattery & Bro., Inc., 108-110 Lawrence St., Brooklyn, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Mead Gas Heater Co., Delawanna, N. J.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.

**RANGES (Domestic)**

A-B Stove Co., Battle Creek, Mich.  
 Century Stove & Mfg. Co., Johnstown, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Chambers Manufacturing Co., Shelbyville, Ind.—(Fireless type)  
 Bartlett & Co., Inc., Philadelphia, Pa.  
 Comstock-Castle Stove Co., Quincy, Ill.  
 Abram Cox Stove Co., Philadelphia, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Dangler Stove Co. Div., Cleveland, Ohio  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Eriez Stove & Mfg. Co., Erie, Pa.  
 Estate Stove Co., Hamilton, Ohio  
 National Stove Co. Div., Lorain, Ohio  
 New Process Stove Co. Div., Cleveland, Ohio  
 Quick Meal Stove Co. Div., St. Louis, Mo.  
 Rathbone, Sard & Co., Albany, N. Y.  
 Reliable Stove Co. Div., Cleveland, Ohio  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 Scott Gas Appliance Mfg. Co., Commercial House, Pottstown, Pa.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.

The Champion Stove Co., Cleveland, Ohio  
 The Eclipse Stove Co., Mansfield, Ohio  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 The Michigan Stove Co., Detroit, Mich.  
 The Ohio Stove & Mfg. Co., Columbus, Ohio  
 The Peninsular Stove Co., Detroit, Mich.  
 The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.  
 Union Stove Works, 70 Beekman St., New York, N. Y.  
 Vesta Gas Range & Mfg. Co., Chattanooga, Tenn.  
 Walker & Pratt Mfg. Co., Boston, Mass.  
 Weir Stove Co., Taunton, Mass.

**RANGES (Hotel)**

Geo. M. Clark & Co. Div., Chicago, Ill.  
 Comstock-Castle Stove Co., Quincy, Ill.  
 Abram Cox Stove Co., Philadelphia, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York, N. Y.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Estate Stove Co., Hamilton, Ohio  
 The General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Roberts & Mander Stove Co., Philadelphia, Pa.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Michigan Stove Co., Detroit, Mich.

**REFRACTORY MATERIALS**

J. H. Gautier & Co., Jersey City, N. J.  
 Harbison-Walker Refractories Co., Pittsburgh, Pa.  
 Quigley Furnace Specialties Co., 26 Cortlandt St., New York, N. Y.  
 Russell Engineering Co., St. Louis, Mo.  
 Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 Monarch Engineering & Mfg. Co., American Bldg., Baltimore, Md.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

**REGULATORS (Governors)**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Equitable Meter Co., Pittsburgh, Pa.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.  
 National Machine Works, Sheffield & North Aves., Chicago, Ill.  
 Reynolds Gas Regulator Co., Anderson, Ind.  
 Steere Engineering Co., Detroit, Mich.  
 The Brown Instrument Co., Philadelphia, Pa.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Cleveland Rotary Meter Co., Cleveland, Ohio  
 The Sprague Meter Co., Bridgeport, Conn.  
 The Western Gas Construction Co., Fort Wayne, Ind.  
 L. J. Wing Mfg. Co., 362 West 13th St., New York, N. Y.

**REDUCING VALVES (Gas, Air, Steam, Water)**

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York City.

**REPAIRS (Gas Meters and Appliances)**

Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.  
 Maryland Meter Works, Baltimore, Md.  
 Superior Meter Co., Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**RETORTS**

Gas Machinery Co., Cleveland, Ohio  
 J. H. Gautier & Co., Jersey City, N. J.  
 Harbison-Walker Refractories Co., Pittsburgh, Pa.

Russell Engineering Co., St. Louis, Mo.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

**RUST PREVENTATIVE**

Superior Laboratories, Grand Rapids, Mich.

**SCRUBBERS**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 Isbell-Porter Co., Newark, N. J.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Koppers Co., Pittsburgh, Pa.  
 The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The U. G. I. Contracting Co., Broad & Arch Sts., Philadelphia, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**SEPARATORS (Oil and Steam)**

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York City.

**SERVICE BOXES, CLAMPS, Etc.**

Camden Iron Works, Camden, N. J.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 General Fire Extinguisher Co., Providence, R. I.  
 Hays Mfg. Co., Inc., Erie, Pa.  
 H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.

**SPECIALS—CAST IRON**

Camden Iron Works, Camden, N. J.

**STEAM TRAPS**

Plant Engineering & Equipment Co., Inc., (Corliss Valve) 192 Broadway, New York, N. Y.  
 Pratt & Cady Co., Inc., Hartford, Conn.

**STILLS (Benzol, Toluol)**

Foundation Oven Corporation, Woolworth Building, New York, N. Y.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Koppers Co., Pittsburgh, Pa.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**STOVES (Confectioners, Laundry, Tailor)**

A-B Stove Co., Battle Creek, Mich.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 The General Gas Appliance Co., 103 Park Ave., Brooklyn, N. Y.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

**STRAINERS (Gas, Air, Steam, Water)**

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.

**STRUCTURAL STEEL WORKS (See Holders)****TANKS (Ammonia, Oil, Water)**

Camden Iron Works, Camden, N. J.  
 Cruse-Kemper Co., Ambler, Pa.  
 Davis & Farnum Mfg. Co., Waltham, Mass.  
 Gas Engineering Co., Ingram Ave., Trenton, N. J.  
 Gas Machinery Co., Cleveland, Ohio  
 National Tube Co., Frick Bldg., Pittsburgh, Pa.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.



The Stacey Bros. Gas Construction Co., Cincinnati, Ohio  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**THERMOMETERS**

American Meter Co., 105 W. 40th St., New York, N. Y.  
 Brown Instrument Co., Philadelphia, Pa.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 General Fire Extinguisher Co., Providence, R. I.  
 Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 Gas Instrument Co., Ingram Ave., Trenton, N. J.  
 The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.  
 Superior Meter Co., Bush Terminal, Brooklyn, N. Y.  
 The Western Gas Construction Co., Fort Wayne, Ind.

**THERMOSTATS**

Brown Instrument Co., Philadelphia, Pa.  
 Gas Machinery Co., Cleveland, Ohio  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 Minneapolis Heat Regulator Co., Minneapolis, Minn.  
 B. Ryan & Co., 60 E. 10th St., New York, N. Y.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio

**THERMO VALVES**

Brown Instrument Co., Philadelphia, Pa.  
 Pittsburgh Water Heater Co., Pittsburgh, Pa.

**THORIUM**

Welsbach Co., Gloucester, N. J.

**TRENCH WORK**

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.

**TURBINE (Steam)**

L. J. Wing Mfg. Co., 362 West 13th St., New York, N. Y.

**VALVES**

Claus Automatic Gas Cock Co., Milwaukee, Wis.  
 Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.  
 Gas Machinery Co., Cleveland, Ohio  
 General Fire Extinguisher Co., Providence, R. I.  
 Isbell-Porter Co., Newark, N. J.

Plant Engineering & Equipment Co., Inc., 192 Broadway, New York, N. Y.  
 Pratt & Cady Co., Inc., Hartford, Conn.  
 Steere Engineering Co., Detroit, Mich.  
 The Bartlett Hayward Co., Baltimore, Md.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 The Improved Equipment Co., 60 Wall St., New York, N. Y.  
 The Stacey Mfg. Co., Cincinnati, Ohio  
 The Western Gas Construction Co., Fort Wayne, Ind.

**VALVES (Needle Valves for Gas Stoves)**

The Roberts Brass Mfg. Co., Detroit, Mich.

**WATER HEATERS**

A-B Stove Co., Battle Creek, Mich.  
 Bartlett & Co., Inc., Philadelphia, Pa.  
 Geo. M. Clark & Co. Div., Chicago, Ill.  
 Abram Cox Stove Co., Philadelphia, Pa.  
 Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.  
 Detroit Stove Works, Detroit, Mich.  
 Eclipse Gas Stove Co., Rockford, Ill.  
 Estate Stove Co., Hamilton, Ohio  
 General Gas Appliance Co., 103 Park Ave., New York, N. Y.  
 Humphrey Co., Kalamazoo, Mich.  
 Kidde & Co., 169 Chambers St., New York, N. Y.  
 Lawson Mfg. Co., Pittsburgh, Pa.  
 The Kompak Company, New Brunswick, N. J.  
 New Process Stove Co. Div., Cleveland, Ohio.  
 Peninsular Stove Co., Detroit, Mich.  
 Philadelphia Stove Co., Philadelphia, Pa.  
 Pittsburgh Water Heater Co., Pittsburgh, Pa.  
 Rathbone, Sard & Co., Albany, N. Y.  
 Reliable Stove Co. Div., Cleveland, Ohio  
 Ruud Mfg. Co., Pittsburgh, Pa.  
 The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.  
 The Bryant Heater & Mfg. Co., Cleveland, Ohio  
 The Cleveland Heater Co., Cleveland, Ohio  
 The Hoffman Heater Co., Lorain, Ohio  
 The Lovekin Water Heater Co., 39 Laurel St., Philadelphia, Pa.  
 The Michigan Stove Co., Detroit, Mich.

**WATER STILLS (Gas Heated)**

The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.  
 Young Bros. Co., Detroit, Mich.

**WELDED STEEL PIPE**

The Bartlett Hayward Co., Baltimore, Md.  
 Steere Engineering Co., Detroit, Mich.

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**WASHINGTON**

*Seattle:* Lighting Co. reports P. S. C. grants third increase effective April 1, 1920. New rate: 500 c. f. 75¢ net—next 1,500 c. f. \$1.50 net per M—next 3 MCF \$1.30 net—next 35 MCF \$1.05—next 60 MCF 95¢. Over 100 MCF 85¢ net per M. P. P. Meters 700 c. f. or less \$1.05 net, over 700 c. f. \$1.50 per M. For former rates see Cum. List No. 5.

**WYOMING**

*Cheyenne:* Light, Fuel & Power Co. reports increase effective Oct. 1, 1918. New rate: 1st 2 MCF \$1.45—next 3 MCF \$1.35—next 10 MCF \$1.25—next 15 MCF \$1.15—next 20 MCF \$1.00. Over 50 MCF 90¢ per M. Penalty 5¢ per M, 10 days. Old rate, same as above with disc. of 10% each block ten days.



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# AMERICAN GAS ASSOCIATION, INC.

HEADQUARTERS 180 EAST 15TH ST., NEW YORK, N. Y.

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